

AMERICAN RAILROAD JOURNAL.

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HENRY V. POOR, Editor.

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American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & Co., 136 NASSAU ST.

Saturday, February 22, 1851.

Montreal and Prescott Railway.

We learn that C. S. Gzowski, Esq., Chief Engineer of the St. Lawrence and Atlantic railway, is engaged to survey the line of railway from the city of Montreal to Prescott. We learn that arrangements are so far consummated, that an early commencement of the work of constructing the road, is now regarded as made certain.

The Parliament of Canada, a year or two since, passed a law, authorising the various municipal corporations to subscribe stock in railroad companies on certain conditions, through the aid of which subscriptions, in addition to private assistance, and with the aid of the "Facility Law" of Canada, it is supposed that the road can be readily completed. The guarantee of public credit by the law above referred to, is the most important feature in the railway measures of Canada, and promises to

give great efficiency to the movements of the friends of railway progress. We expect ere long to witness a decided movement for extending an unbroken line of railway from Montreal to Sandwich, opposite Detroit. Charters are already granted, and the route is known to be free from any serious engineering difficulties. The line passes through a succession of prosperous villages and towns for its whole extent, whose means are abundantly adequate to its construction, using the provincial guarantee to the amount of one-half the cost. Separate companies having distinct charters, which would the sooner enable them to call for the government debentures. One company's charter extends from Montreal to Kingston, another from Kingston to Toronto, and another from Toronto to Hamilton and Sandwich.

Maine.

Atlantic and St. Lawrence Railroad.—A meeting of the stockholders is called for the 6th of March, for the following purposes:

1st, To see if the stockholders will authorise the directors to make a mortgage of the whole road, and all the real and personal property and franchise of the company to secure the bonds of the company to the amount of \$1,500,000, to bear date April 1st, 1851, payable in 15 years, subject to the prior lien and mortgage to the city of Portland.

2d, To see if the stockholders will authorise the directors to unite with the Androscoggin and Kennebec railroad company, with or without other parties, in taking lease of the Penobscot and Kennebec railroad on such terms as may be agreed upon by the directors—provided the required authority to make such lease shall be granted by the Legislature.

A Shorter Route to Lake Erie.

Wm. H. Morrell, Esq., an experienced engineer, writes as follows to the Courier and Enquirer in relation to the proposed route from New York to Owego or Elmira through Pennsylvania:—

"Recently there has been much said, in quarters interested in depreciating the value of Erie railroad stock, in relation to a route through New Jersey and Pennsylvania, connecting with the New York and Erie at some point on the Susquehanna, which shall shorten the distance from this city to the point of connection nearly one hundred miles. To those who know anything of the topography of the intervening country, it is needless to say, that

no such route exists, and especially none by the route designated by these parties, as by that route an air line connecting points between which they claim that the greatest saving in distance is to be effected, is longer, by scores of miles, than set down by them. The truth is, there is no practicable route from this city to Lake Erie, connecting with the Erie road, that can reduce the distance more than twenty miles, and all of these routes are to be constituted by a combination of a number of roads of higher grades than the N. York and Erie and having a width of gauge unsuited to the New York and Erie cars, and their management under several distinct corporations; while the New York and Erie road will present a continuous track, of uniform gauge, under one management—a difference more than sufficient to compensate, both in time and in money, for any saving that can possibly be effected in distance by the aggregation of the several roads that have been paraded before the public, to frighten the holders of the New York and Erie stock and securities into a sacrifice of their property."

"Canton" Stock.

The property of this celebrated fancy consists of three thousand acres of land, and \$300,000 expended in improvements upon it, estimated to be worth two millions of dollars, and represented by 12,500 shares, at \$160 per share. In September last the shares sold at \$47; in December they had advanced to \$55; early in January to \$70—about which time they were introduced into this market—and on the 28th they reached the culminating points of \$95 for money, and \$97 on time.

Remington's Bridge.

The Amsterdam Intelligencer says "the bridge built the last season, and recently finished, across the Mohawk, at Tribes Hill, on the Remington plan, went down last week, being unable to sustain its weight from its immense length. We understand the cost of the company so far, in erecting this and another bridge that fell down last year, is about \$12,000."

We cautioned the public against this humbug, when it first made its appearance here; and Mr. Whipple, of Albany, the well-known bridge builder, demonstrated the utter absurdity of its pretensions, in articles published in our paper sometime last fall. However, people prefer to get their knowledge a different way; and in the above in-

stance have chosen to pay \$12,000 for information that any sensible man would have given them gratuitously.

From the Merchant's Magazine.

Internal Improvements of the State of New York.

A SKETCH OF THE RISE, PROGRESS, AND PRESENT CONDITION OF INTERNAL IMPROVEMENTS IN THE STATE OF NEW YORK.

RATES OF TOLL ON THE NEW YORK STATE CANALS.
Continued from page 83.

The revenue from the trade with other States in 1835, by way of Buffalo, was equal to 15 per cent of all the tolls of the Erie canal. By way of Buffalo and Oswego, the revenue on the trade with the Western States and Canada was equal to 18 per cent of the tolls of the Erie and Oswego canals.—The revenue on the trade with Canada and Vermont in the same year, by way of Whitehall, was equal to 27 per cent of the whole tolls collected on the Champlain canal.

In the report of tolls and tonnage in 1837, (Senate Doc. No. 52,) it is stated that the revenue paid to this State on the trade with other States, in 1836, was as follows, viz:—

On property passing Buffalo to other States.....	\$237,230 31
On property coming from other States by way of Buffalo.....	108,506 35
On property by way of Oswego to other States.....	35,312 15
On property coming from other States.....	8,034 54
On property by Whitehall, to other States.....	11,209 97
On property by Whitehall, from other States.....	17,699 85
Total.....	\$417,993 13

This sum is equal to 25 and eight-tenths per cent of the aggregate sum collected for tolls (\$1,613,330) on all the State canals in 1836.

The revenue on the trade with other States for the same year, by way of Buffalo and Oswego, was equal to 26 per cent of the tolls on the Erie and Oswego canal; whilst the tonnage to and from other States was only 11½ per cent of the whole tonnage of those two canals. The same trade by way of Whitehall yielded 25 per cent of the tolls of the Champlain canal. It is considered in these estimates that the tonnage on the trade with other States passes the whole length of those canals to and from tide water.

The report of 1837, before referred to, also shows the extent of the reductions made in the rates of toll from 1832 to 1836, and the effect of those reductions on the trade of the canals, viz:—

	Rates in 1832.	Rates in 1833.	Rates in 1834-5-6.
Toll on 1,000 lbs. of merchandise from Albany to Buffalo.....	\$5 08.20	\$4 35.60	\$3 26.70
Toll on 1,000 lbs. of flour from Buffalo to Albany.....	2 54.10	1 81.05	1 63.35
Total.....	\$7 62.30	\$7 17.65	\$4 90.05

The total amount of toll paid on 30 tons of flour from Buffalo to Albany, with the toll on a return cargo of 30 tons of merchandise, would be—

By the rates of 1832.....	\$457 38
By the reduced rates of 1834-35-36.....	294 03

Gain to the transporter on 30 tons of merchandise through the canal each way.....\$163 35

The report of 1837, pages 24, 25, then says:—"Notwithstanding all these reductions in the rates of toll, which are equal to an average of 36 per cent on all the products transported on the canals, the aggregate amount of revenue from tolls has greatly increased. The following statement shows the amount collected for tolls on the Erie and Champlain canals for four years, at the old rates, and for four years since the reduction of the rates of toll commenced, viz:—

In the season of 1829, at the old rates.....	\$795,056 52
" " 1830, " ".....	1,032,599 13
" " 1831, " ".....	1,194,610 49
" " 1832, " ".....	1,195,804 23

Total sum received in 4 years.....\$4,218,068 37

In 1833, (average reduction of toll about 20 per cent).....	\$1,492,696 22
In 1834, (further reduction of 15 per cent).....	1,294,956 86
In 1835, (reduction on lumber 37, and on shingles 50 per cent).....	1,491,952 36
In 1836.....	1,555,965 11

Total sum received in four years at reduced rates.....\$5,765,569 55

Increase in four years, at reduced rates, over the tolls of four previous years at the old rates \$1,547,501 18.

It was not until 1837, that the collectors of tolls were required to furnish statements of the amount of toll paid on each article transported on the canals. The results of those statements are given in the report of tolls and tonnage of 1838, pages 26-7.

Tolls at two cents per mile on freight boats.....	\$111,339
Tolls on steamboats and passengers.....	84,169
" on products of the forest.....	209,806
" on products of animals.....	33,763
" on vegetable food and other agricultural products.....	336,278
" on manufactures.....	75,507
" on merchandise.....	380,826
" on other articles.....	56,430

The products of the forest paid 16½ per cent of the whole tolls—the products of agriculture 28½—merchandise 29½—manufactures 5½—boats and passengers 15—other articles 4.3 per cent.

It was shown in the report of 1838, page 33, Senate Doc. 35, that the rates of toll on the Pennsylvania canals exceeded those of New York as follows:—

On the products of the forest, 54 per cent; agriculture, 39.3; manufactures, 78.7; merchandise, 30.7; other articles, 31.9 per cent.

The average amount of revenue from the canals and railroads of Pennsylvania for 1836 and 1837, was equal to \$715,144 for each year. That of New York, for the same time, averaged \$1,451,883 for each year, being \$21,000 more than double the sum received on the Pennsylvania works. In competing for the western trade, the canal commissioners of Pennsylvania, at the period referred to, did not follow the example of New York by reducing the rates of toll. On the contrary, the commissioners of that State, in their report of 1835, remark as follows:—"The board have no hesitation in saying, that but little if any reduction in the rates of toll ought to be made at present. Further time, and the completion of several works of internal improvements now in progress, which connect with our canal and railways, will secure an ample commerce without sacrificing the revenue to produce a precarious prosperity."

The policy of that State, on this point, has been somewhat changed since 1835, and besides reducing toll, a draw-back has been allowed on flour, and some other articles, when transported over a certain number of miles.

In 1841, the canal board reduced the toll on mineral coal coming to tide water from the west, or going west from Utica, and on anthracite coal going from tide water, to 2 mills per 1,000 pounds per mile; and also allowed a draw-back of 73 per cent on the amount paid on mineral coal from the west to tide water, and the same on anthracite coal from tide water to Utica, or at any point west thereof. The toll on bar and pig lead was also reduced to 2 mills per 1,000 pounds per mile.

These rates were reduced below the constitutional minimum, under the 15th section of chap. 288 of the laws of 1840, which declared that the canal board might fix such rates of toll upon those arti-

* In 1825, the toll on packet boats was fixed at 20 cents per mile. In 1830, the rate was reduced to 15 cents, and in 1831, to 11 cents; the toll west of Utica being 6 cents per mile—each passenger rated at 150 pounds. In 1830, each person over twelve years of age was charged at the rate of two mills per mile.

cles not specially enumerated in the report of the canal commissioners, referred to by the constitution.

In 1842 these rates were restored to the constitutional minimum for reasons set forth in the report on tolls and tonnage. Senate Doc. No. 100 of '43, pages 38 to 45.

The first day of July, 1845, was the period fixed for the payment of the last instalment of the original debt, contracted for the construction of the Erie and Champlain canals. In May, of the preceding year, notice was given to the holders of the outstanding stock that the State was prepared to pay the debt, and that on the first of July, 1845, funds would be placed in the Manhattan company for this purpose, and that after that date no interest would be paid on the debt. Between the 1st and 8th of July, \$530,000 of the debt was redeemed, leaving a balance of debt to come in of \$252,620 30. To meet this balance there was in the bank, as certified to the canal board by the President and Cashier, the sum of \$481,335 41.

With these facts before them, the canal board, on the 11th of July, 1845, proceeded to make a general reduction in the rates of toll on the canals, regarding the debt as substantially paid. The reduction on agricultural products was half a mill per 1,000 pounds per mile; merchandise generally was reduced from 9 to 8 mills, and a discrimination was made on sugar, molasses, coffee, nails, spikes, iron and steel, reducing these articles from 9 to 5 mills per 1,000 pounds per mile.—Mineral coal, not entitled to a bounty, was reduced to one mill per 1,000 pounds per mile, for the purpose of bringing the bituminous coal of Ohio to tide water, which was effected to some extent.

In the annual report of the commissioners of the canal fund in 1846, it is stated:—"That the opening of the Wabash and Erie canal of the Miami extension, connecting Cincinnati by canal navigation with Lake Erie, and the Erie extension canal, affording a like connection between Pittsburgh and Lake Erie, rendered it expedient, if not necessary, that the tolls of our canals should be reviewed and adapted to the important changes which the opening of these various channels of trade might produce. It was with this view that essential reductions were made by the canal board in July last, and particularly those on merchandise, to take effect at the opening of navigation in 1846."

The report also shows the total charge on 1,000 pounds of flour from Buffalo to Albany, and 1,000 pounds of merchandise back, by the rates in 1832, 1834, and as fixed in 1846, as follows:—

	1832.	1836.	1846.
Tolls on 1,000 lbs. of flour and the same of merchandise.....	\$7 62.20	\$4 89.05	\$3 81.15

On a boat load of fifty tons of flour from Buffalo to Albany, and a return cargo of 30 tons of merchandise, the transporter would gain \$272 25, comparing the rates of 1832 with those of 1846.

In February, 1846, and before the reduced rates of toll went into operation, the commissioners of the canal fund were called upon by a resolution of the Senate, to report the amount of tolls received in 1845, on products of this State and other States, and how much less they would have been at the rates fixed by the canal board in 1846. The report showed that the reduction on the products of other States in 1845, would be equal to \$159,442; and on the products of this State \$196,445; total amount of reduction \$355,887.

The reports said:—"It should not, however, be inferred that this is to be the measure of the reduction of the receipt of tolls in 1846, or that there is to be any reduction in those receipts." And the belief was expressed that the effect "would be to increase rather than diminish the canal revenues."

And such was the effect, as shown by the report of 1848, Assembly Doc. No. 11, in which the tolls for two years previous to the reduction, and two years subsequent, were compared as follows:—

1844, at old rates, gross amount of tolls.....	\$2,446,374
1845.....	2,646,181
1846, rates reduced 15½ per cent.....	\$2,756,120
	\$5,092,555

1847..... 3,616,000

6,372,120

Increase of revenue at reduced rates...\$1,279,565

In the winter of 1846, in anticipation of the foreign demand for vegetable food, and the probable opening of the British ports to our breadstuffs, representations were made to the canal board, by persons interested in the corn trade in the valley of the Wabash, showing, that if the tolls of the Erie canal on corn was reduced to 2 mills per 1,000 pounds per mile, great quantities of corn would be sent from that region as far down as Lafayette, through the Erie canal, from the desire to ship that article from New York, without exposing it to the warm climate of New Orleans. In February, 1846, a proposition was made in the canal board to reduce the toll on corn from 4 to 2 mills per 1,000 pounds per mile, on which the members of the board were equally divided. A reduction of one mill, however, was made by one majority. The unprecedented demand for vegetable food caused by the famine in Europe, and the high price growing out of this state of things, brought the immense quantities of corn to the ports of the Atlantic: but the reduction in the rate of toll, small as it was, had a material influence in securing a large portion of this trade to the New York canals.

The following statement shows the quantity of corn transported on all the New York canals, as well as the quantity coming to tide water, for four years preceding, and four years subsequent to this reduction of toll, and also the amount of revenue derived in each year on the article of corn:—

Years.	Cleared on all the canals.	Came to tide water.	Tolls paid.
1842.....bush.	369,933	366,111	\$29,751
1843.....	287,033	186,016	14,935
1844.....	173,300	17,861	4,741
1845.....	180,933	33,778	4,200
Total.....	1,011,199	603,766	54,627
1846, toll reduced 25 per cent.	1,819,285	1,610,149	84,903
1847.....	5,819,285	6,053,845	269,396
1848.....	3,350,000	2,933,962	162,392
1849.....	5,671,500	5,060,250	182,952
Total.....	16,676,676	15,658,207	699,643

This statement shows an increase in the quantity of corn coming to tide water in 4 years after the reduction in the rates of toll, compared with the four previous years, of more than fifteen million of bushels; and an increase of revenue during the same period from the toll on corn of \$646,016.

The toll on corn was reduced to two mills per 1000 pounds per mile, to take effect on the opening of navigation in 1849.

In December, 1849, a meeting of forwarders and shippers engaged in the commerce of the lakes and canals, was held at Buffalo, and a memorial was prepared for the canal board, asking a further reduction of toll. In this memorial it is stated that the reduction of 45 per cent on sugar, coffee, iron, &c., in 1846, had produced an increase in three years in those articles, from 103,870,304 to 166,472,536 pounds, equal to an increase of 60 per cent in three years. It appears by a statement published by J. L. Barton, in September last, that altho' an average reduction of about 20 per cent was made in these rates of toll in the spring of 1850, the tolls of this year would be equal to the preceding; and the result at the close of the navigation sustains his position.

As a system of revenue, the regulations for the collection of tolls on the New York canals, has been eminently successful. The collectors are required to deposit daily the sums received by them with some bank or agent designated by the canal board; and each one send to the canal department a weekly abstract, showing the sum received and deposited each day; and at the close of the month a statement is made to the same department by the bank or agent, giving the sum received each day, and furnishing a check on the reports of the collector. At the close of each month, also, the collectors return to the canal department, their monthly rolls, on which are entered the names of boats and the sums paid on account of tolls, an examination and comparison of which enables the de-

partment to detect erroneous statements in regard to the sums received for toll at any collectors office, as returned on the weekly abstracts; each collector being charged by a neighboring office with all the tolls as receipted by him on each clearance, with the name of the boat on which the toll was paid, and all particulars necessary to a full explanation of the charge.

The whole expense of collecting the revenues on 700 miles of canals is about fifty thousand dollars, which includes the sums paid to collectors and their clerks, weigh masters, inspectors of boats, and all the expenses of their several offices. For the last ten years the expenses of collecting the revenue averaged only a fraction over two per cent of the gross sum received for tolls.

To be continued

Railway Economy--Improvement in Locomotive Engines.

We have, on more than one occasion, taken an opportunity of drawing attention to the improvements which have from time been made in various departments of the working of railways, and more especially to the advance which has within the last few years taken place in the practical saving effected in the wear and tear of road, as well as plant, and the general economy of our rolling stock. The improvements of Messrs. Barlow and other gentlemen on the structure of the permanent way, are daily leading to the most practical results, which must eventually tell upon the earnings of railway companies, whilst the true construction of locomotives has received valuable elucidation at the hands of Mr. Crampton.

The principle introduced by this gentleman, namely, of placing the weight on the extremities instead of in the centre of the engine is, we are happy to find, likely to be still more generally adopted; and we hear that during the last month orders for some twenty engines, built on this principle, have been received from some of our leading lines. We confess that at one time we entertained a very strong impression that the principle would be found to "carry out" better on large engines, and only on the outside cylinder system; but it has been practically demonstrated that it is as applicable to light tank engines of 10 tons, as to heavy engines of 36 tons, allowing a control to the engineer over the details of his engine, and the privilege of determining the due proportion of all the parts, as may seem best suited to the work to be done. Thus the principle of Crampton's engine is, in truth and in fact, as capable of adaptation to inside as to outside cylinder.

We learn further that Mr. Crampton has succeeded in bringing into operation a principle for suspending engines of all classes, by means of which the least possible amount of injury is done to the road, and in the same proportion to the engine itself.

We are aware that Mr. D. Gooch, of the Great Western, and Mr. Sturrock, of the Great Northern railway, have had their attention directed to the system of suspending their engines on their extremities; and they have succeeded in a great measure, with coupled engines of the ordinary construction, by applying compensating springs, which have the effect, to a certain extent, of placing the weight of the engine on the extreme ends. This is important, not only for preserving a uniform weight in the coupled wheels in order to produce steadiness, but it secures the least amount of wear and tear to the wheels and machinery. It is impossible to say which of the two systems of engines, whether in coupled-wheeled, for goods or single engines, it is of most importance that the principle should be adopted; but we venture to express our opinion, from personal observation, that all parties interested in railways in these days would do well to look into this question, the more particularly as we have reason to believe there is sufficient practical evidence to enable engineers to arrive at a correct conclusion. We are assured, that in the instances in which the system has been fully investigated, but one opinion prevails, viz., that the principle is correct. Mr. Crampton accomplishes his object by placing the driving wheel at the end of the engine instead of in the centre, and the wheels carrying about one-half of the whole weight of the engine on them, it is clear that one-

half will be on the driving wheels; and by assuming four small wheels at the other end to take the other half, the machine in fact, is suspended on the extremities; but in the ordinary machine, the driving wheels being in the centre, with half the weight on them, the other half is necessarily equally distributed on the fore and hind wheels, having the effect of a balance beam action—one of the greatest causes of oscillation, and consequent destruction, to the road and machine. The subject is one of great interest to the engineering world, and of not inferior importance to the earnings of railway companies, in the economy and safety of their engine stock.—*Railway Record.*

Report of A. L. Roumfort, Superintendent Columbia and Philadelphia Railroad, on the experiments made with the Coal Burner, "Henry A. Muhlenberg."

SUPERINTENDENT'S OFFICE, Parkersburg,)
November 27, 1850. }

To the Honorable, the Board of Canal

Commissioners, Harrisburg, Pa.:

GENTLEMEN:—The undersigned, superintendent of motive power on the Columbia and Philadelphia railroad, having been instructed by your board to test, practically, the patent movable fire box, for burning anthracite coal in locomotive engines, invented by John J. DeHaven, respectfully reports:

That on taking charge of the road, on the 1st of September last, he found the locomotive "Henry A. Muhlenberg," refitted for testing this experiment, which was done, as he was informed, by your order, under the superintendence of his predecessor, Colonel Wm. English. The improvement purported to consist: first, in the substitution of anthracite or bituminous coal, as a fuel, for wood, in generating steam; thereby saving from 30 to 50 per cent. in the cost for fuel to the State. And, secondly, in constructing a detached and movable fire box, entirely separate from the engine and boiler; and in such a manner, by the use of bolts, flanges and connecting pipes, as to attach it to a boiler, and detach it when necessary for repairs, in a space of time not exceeding twenty-four hours. This latter (which is the particular improvement covered by DeHaven's patents,) was designed to remove the great objection to the use of coal burners, in generating steam, both in locomotives and marine boilers, viz: the loss of time necessarily incurred in the frequent repairs of the fire box.

It has been satisfactorily ascertained, long since, that in this section of the country, where wood as a fuel is more costly than coal, and becoming more so annually, that the use of coal in the generation of steam, would be a large item of economy. And accordingly, within the last ten years, experiments made on our principal railroad and steam navigation lines, have proved to a demonstration, that coal can be used for the purpose of generating steam, in such a way as to be entirely satisfactory and with a saving of from 30 to 50 per cent., according to the relative value of wood and coal.

The obstacle, however, in the way of its general introduction, has been found to consist in the fact, that the heat produced by coal, being more intense in the fire box than that of wood, this intense heat, together with the chemical action of the coal upon the lining of the fire box, destroyed it, in a comparatively short period of time; and that although the great saving in the first cost of fuel made the actual cost of the repairs of the fire box no object; yet, the loss of time occasioned by those frequent repairs was, and still is, a serious evil. For instance, a coal burner in full active duty, may burn out her box in from 6 to 18 months, according to her capacity and service. It would cost from \$500 to \$1000 to repair her. This cost, however, is much more than made up by the difference of the cost of coal and wood; but the time consumed in making this repair, would involve a loss of from four to six weeks on a locomotive, when the engine required no other repairs.

DeHaven's movable box is so constructed, that each locomotive or marine boiler, may have duplicate fire boxes, so that when the one in use is burnt out, or becomes injured in any way, it can be removed, and the duplicate put in its place in a period of twenty-four hours.

In constructing a new locomotive, the cost would not be greater with this improvement than without

it. The expense of altering a locomotive, so as to adapt this movable fire box to it, would be from \$500 to \$1000, according to the capacity of the boiler, including the cost of the box itself.

To test the qualities of the coal burner "Henry A. Muhlenberg," she was put in service on the 17th of October last, and has continued to run without intermission up to the present time, during which period she made thirty four trips between the head of the Schuylkill inclined plane and Columbia, a distance of 76 miles. This locomotive, when in good repair, burning wood, could draw over the road 21 loaded cars, averaging from ten to twelve miles an hour. She has satisfactorily proved, during her recent trial, that she can run from ten to twelve miles per hour, and draw upwards of 21 loaded cars, burning anthracite coal.

To do this work, burning wood, requires at least two cords; burning coal, one ton and a half. During the whole experiment of thirty-four trips, the fire box, which is attached to the frame and boiler, has remained perfectly firm, and works as well as if it were stationary, and no inconvenience having arisen in these experiments on account of the box being movable, I can see no objection to its use.—From my observation and experience, I believe that this fire box, with an adequate force, might be removed, and a ready made duplicate substituted in twenty four hours, so as to detain the locomotive for this purpose no longer than that length of time.

The result of this test is, therefore, entirely satisfactory to me, and I recommend the whole matter to the future consideration of your board.

A. L. RUMFORD,

Supt Columbia and Philadelphia R. R.

December 20th, 1850.—Approved by the board,

MORRIS LONGSTRETH, President.

—Journal of the Franklin Institute.

ANNUAL REPORT

Of the State Engineer and Surveyor, covering the returns of the Railroads of New York for 1850.

THE HON. SANFORD E. CHURCH,

President of the Senate.

I have the honor to submit herewith the reports received at this office, from the railroad corporations of this State, made in accordance with, or in consequence of, the 31st section of the general railroad law of 1850, chap. 140.

The following corporations have reported in full—The Albany and Schenectady, Auburn and Rochester, Hudson and Berkshire, Hudson River, Northern, Oswego and Syracuse, Rochester and Syracuse, Tonawanda, Utica and Schenectady, and New-York and New Haven.

The Albany and West Stockbridge and Chemung roads being leased to other corporations, the reports seem to cover all the data in their possession.

Partial reports only have been received from the following corporations:—The Attica and Buffalo, Buffalo and Niagara Falls, Cayuga and Susquehanna, New York and Harlem, Rensselaer and Saratoga, Saratoga and Schenectady, Schenectady and Troy, and the Syracuse and Utica.

The following corporations have made no returns whatever:—The Auburn and Syracuse, the Long Island, and the Saratoga and Washington.

Most of the information required to be given by the law, is such as, from the nature of the case, must be known and recorded by each company, if they keep any reliable accounts at all, and the cost and trouble of collating and arranging must be the only cause which any company can assign for not making the reports as the law requires. The fact that so many companies have reported as required, is sufficient evidence that the law can be complied with.

The law does not require, nor do I deem it necessary for me, in laying these reports before the Legislature, to enter upon any general discussion of the value of the information required, or of the interest which the people of the State and the owners of railroads have in knowing the exact results of railroad transport up to this time, or their capacity for further improvements in the rapidity and economy of movement. The subject is of the utmost importance, and sooner or later will attract its due share of public attention.

Yearly reports from all our railroad corporations will, if made in accordance with the requirements

of the law, afford most valuable information, in determining the cost of transport under a great variety of conditions, both as to the character of line, and nature and amount of traffic. It is to be regretted, however, that many of the reports are so meagre in detail as to be of little value. The legislature may see fit to require the delinquent corporations to complete their reports for the past year, and if so, they should be returned by the 15th of February. The law of 1850 imposes a fine of \$250 on each corporation failing to comply with the requirements of the 31st section thereof. Eleven corporations have not met its requirements.

I would respectfully recommend that the penalty for a failure to report be modified. I cannot understand why it should not be the same as for any other violation of chartered rights or duties, but if a fine is to be imposed it should be a much larger amount than it is at present.

I desire to call especial attention to the nature and importance of the information to be gained from reports made as the law prescribes, and its directness to the point in determining the actual cost of transport.

The report of the Utica and Schenectady company, is complete in all the details required. The road of this company has a larger traffic, and income (per mile) than any other and its profits are abundant. For this reason, if for no other, we may confidently rely upon their statements, as embracing all the expenditures properly chargeable to the cost of transport. The only doubt which can be entertained as to the entire accuracy of their report is in the amounts of expenses, as allotted to passenger and freight transportation. It may be, for aught I know, that as this is the first time the company have been called upon to make for public inspection, such a division of expenses, that their accounts during the year, have not been kept with especial reference to a proper division, and that the superintendent has, since the close of the fiscal year, made up the account between freight and passengers according to his best judgment, upon a full examination of the different items of expenditure. If so, he has acted properly, and the expenses of freight and passenger transport, so made, can be relied on as very near the truth, though not as accurate as it may be when from month to month, accounts are made up with especial reference to making the proper distribution of cost of labor, and a record kept of fuel and other materials used in the two departments of transport. Among the complaints made against the provisions of the law, by some managers this requirement, to divide expenses between passenger and freight business has been the most prominent, and I have been gravely assured that it could not be done. Happily, some of our well informed managers have accomplished the task, and will, without doubt hereafter, with greater accuracy. None can make such a division of accounts except the managers of our roads, and they can do it with all necessary accuracy if they try.

The report of the Utica and Schenectady road shows that they have transported 370,988 passengers, and 98,695 tons of freight, and that passenger trains have run 229,940 miles, and freight trains 93,580 miles at an aggregate cost of \$308,173 86, or 95 cents per mile run for both classes of trains. So far and no farther could information as to the cost of transport be obtained from reports made under previous laws. The cost per mile of running trains is no indication of the cost of transport, for the cost depends upon the amount of movement, each mile run, both of passengers and freight, and consequently, movement of both and the cost of both, must be given in addition to the miles run by the engine and cars. Let the above statement be compared with like results given in the report of the Oswego and Syracuse company, which is also complete, but which road has much less traffic, and has moved 77,162 passengers, and 7,949 tons of freight; passenger trains have run 58,480 miles, and freight trains 16,000 miles, at an aggregate cost of \$38,942 92, or 52 cents per mile run. It is here shown that it costs the latter road 43 cents per mile less to run trains, than it has cost the Utica and Schenectady company. Both roads are no doubt managed with equal skill, and sufficient economy. At any rate the above results show nothing. The present reports, however, show

in addition to the above the amount of work done in passengers and tons, or the actual movement, each mile run, and the cost of passenger and freight transport separately. From these data we find that the average number of passengers each mile run has been, on the Utica and Schenectady road, 97, at a cost per passenger of 78-100 of a cent, and on the Oswego and Syracuse, 33, at a cost of 1 ct. and 68-100 of a cent each mile, so that it has cost much less to transport passengers on the former than on the latter road. This result is owing mainly to the larger loads drawn on the Utica and Schenectady road.

An important fact is also established, which up to this time has been doubted by most men conversant with the cost of railroad transport, which is, that passengers can be transported at an expense of less than one cent per mile. This result is obtained as a rule when the average loads are 90 passengers each mile run. That this is the best result which can be obtained from railroads cannot be supposed; further experience and skill will be applied to the task of cheapening transport. The energy and directness of the efforts to be put forth will in a great measure depend upon the bringing up all of the results yearly before stockholders and the public, so as to enable just comparisons to be made, one road with another.

The public have a vast interest in the construction and management of railroads. The franchises of the corporations are granted and protected by them, and any one can be, and large numbers are actual owners of the roads; cheap transport is, however, of most importance to the public, and a full exhibition of all the work done, and items of cost will promote economical management, and tend to reduce the cost of as well as the charges for transport.

The amount of freight traffic is shown to be very large on some of the roads. The whole tonnage carried on the New York and Erie road is 131,311 tons. The company give no information by which the cost of either freight or passenger traffic can be determined. The Utica and Schenectady road has carried 98,695 tons, or 4,690,730 tons 1 mile at a cost of \$133,045 87, or 2,797 cts. per ton per mile; this includes canal tolls amounting to \$47,200 90, or one cent per ton per mile nearly. The actual cost thereof, is 19-10 cts. per ton per mile, the average load being 50 tons. This road carries but little freight except during the close of navigation, and the cost must be considerably increased over what it would be with a more regular business.

The Northern road has been in operation but a short time. The report from that road is made up with great care and accuracy, and their report for the current year will no doubt afford valuable information as to cost of freight traffic.

An examination of the tables will show the results of all the roads as reported made up with much care and labor.

H. C. SEYMOUR,

State Engineer & Surveyor.

New York and Erie Railroad.

To the Stockholders of the N. Y. and E. R. R. Co.:

The Board of Directors have the satisfaction of announcing to the Stockholders the result of their operations during the past year.

At the date of the last address the road was completed to Corning, 277 miles from Piermont, leaving 175 miles to be constructed to reach Lake Erie, upon the route then surveyed, or 169 miles by the route since adopted, reference to which will hereafter be made.

To provide the means for completing this remaining portion of the road, the directors issued \$3,500,000 income bonds, as proposed in their last address.

In addition to the line then completed, the section between Corning and Hornellsville, 41 miles, was opened in September last, and this week another link of 51 miles has been added, extending from Hornellsville to Cuba, making in all 369 miles, exclusive of the Newburgh branch, and leaving but 77 miles to finish, to reach Lake Erie. Upon 37 miles of this track is laid in detached parts, so that only 40 miles remain unfinished, the rails for which are mostly on the ground, ready to be laid on the opening of spring.

The completion of the New York and Erie railroad to Dunkirk, within the time prescribed by law is now no longer a problem. It will be opened *probably* on the 1st, *certainly* by the 14th May next.

This road, like other kindred works of the present day, has cost more than was originally estimated, but not more than others of less importance and value, as will fully appear by reference to their official reports.

The cost upon the western division has been augmented largely, if not mainly, by adopting a new line, other than that upon which the estimate of last year was made; by which a grade of 60 ft. to the mile continuously, for 14 miles, has been reduced to 40, and the distance shortened six miles. This has been done on the 50 miles nearest Dunkirk, and will save the company annually, in working the road, the interest upon four times its extra cost. Other important changes have been made in the line of the road, by which many miles of a continuous grade of 69 feet have been reduced to 50 feet per mile.

The right of way contingent upon a change of line, has been expensive, and the extra cost rendered necessary in hastening the work, in compliance with the requirement of the law of the State, to finish it within a prescribed time, together with the fact that the company have added about \$1,000,000 in value to the stock of their locomotives and cars, within the last year, will doubtless satisfactorily account for the cost of the work over the estimate.

For their convenience in operating the road, and for the greater safety of passengers, the directors have erected for the sole use of the company, a continuous telegraph line from this city to Hornellsville, and will extend it through to the lake, simultaneously with the opening of the road to that point.

The building of 169 miles of railroad so expensive and difficult in its character, within one year, is a great achievement even at the present day, and it is regarded with exultation and pride by the board. Although this is the crowning effort of their labors, it has been more speedily accomplished than any other portions less prominent.

As a whole the work has been formidable, and at times almost overwhelming, and while the board cannot overlook the obstacles which its enemies have thrown, and are still placing in the way of its success, they turn with satisfaction to the remembrance of its numerous friends who have given them aid and encouragement in times of great doubt and embarrassment.

In spite of difficulties, perhaps unequalled, the largest and most important private enterprise in America [if not in the world] is nearly completed, and within ninety days from this time, the board promise themselves the satisfaction of a trip of inspection over the New York and Erie railroad, from the Hudson river to Lake Erie.

The whole cost of the road, with ample depot grounds and buildings, and equipments for operating the road, together with the Newburgh branch, and valuable and extensive grounds and docks at Dunkirk, Newburgh, Piermont and New York, with extensive machine shops, barges, steamboats, etc., will be, at the time of reaching the lake, about \$20,500,000; or, after deducting the value of the equipments, \$2,500,000—\$38,706 per mile—a cost by no means large, when compared with other important railroads in the country.

The average cost of railroads in New England is about \$50,000 per mile.

The financial condition of the company is as follows, viz:

FUNDED DEBT.	
Mortgage bonds issued in lieu of State loan.....	\$3,000,000
Second do., redeemable in 1859.....	4,000,000
Certificates of old indebtedness.....	500,000
Income bonds.....	3,500,000
Total amount of funded debt.....	\$11,000,000
Add to this the present floating debt....	2,988,045
And the probable cost of opening the road to Lake Erie, exclusive of materials now on the ground.....	300,000
And the entire debt of the company will be	\$14,288,045

To fund the floating debt of the company, to provide the necessary machinery and cars for working the road [the remaining unissued capital stock of the company, \$4,710,000, not being available for that purpose] the directors will issue bonds, transferable on the books of the company, for \$3,500,000, bearing interest at the rate of 7 per cent. per annum, payable semi-annually, with interest warrants attached; the principal redeemable 20 years after date, and convertible into the stock of the company at the option of the holder. Authority for which is given in the 10th division of the 28th section of "An act to authorize the formation of railroad companies, and to regulate the same," passed April 2d, 1850.

Confident of the perfect security of these bonds, [the property of the company being worth at least fifty per cent. more than the amount of the entire indebtedness, a statement of which is given below] the directors offer them to capitalists with the full assurance that they will command a ready sale.

The liabilities of the company will then be:
 Funded debt, as before given.....\$11,000,000
 Bonds redeemable in 1871, and convertible into the stock of the company, at the option of the holder [present issue] 3,500,000

Amount of capital stock issued.....\$14,500,000
 To which add for contingencies.....5,790,000
 Making.....\$20,290,000

The amount expended and to be expended in opening the road to Lake Erie. At least \$2,500,000 of which is chargeable to equipment account.

The road, 446 miles, and the Newburgh branch, 19 miles, in all 465 miles in length, is constructed in the most substantial manner. The bridge abutments are of solid cement masonry, and the arched bridges, some of them gigantic in size, are models for strength and durability. Within the last year, parts of the road on the eastern division have been rebuilt, bridges supported on wood have been removed and replaced by others upon durable stone abutments. As a whole, the road is inferior to none in the permanency of its construction, in its capacity for doing business, and in susceptibility to economy in working.

It is a source of satisfaction to the directors that they have generally, in advance, accurately named the time of opening the road from point to point as each new link has been finished, and it is not the less satisfactory to them that their estimates of the earnings of the road have also been realized.

The estimates for the present and following years are made with the same confident expectation that they will be fully realized, and that the company, from its annual net earnings, hereafter will make semi-annual dividends to the stockholders, and have a surplus for other purposes.

The earnings of the year 1849 were.....\$809,777
 " " " 1850 were.....1,600,300

A comparison of the earnings of the road for the last two years, per mile, for each mile in use, taken in connection with the prospective extension of the road to Lake Erie, and the consequent increase of business naturally to be expected from an important opening, will be the basis of the present estimate.

During each of the years of 1849 and 1850, newly finished sections of the road were added to it, and the comparison is instituted from the average distance in use during each year.

In 1849, that portion between Binghamton and Owego, 23 miles, was added in the month of June, and that part between Owego and Elmira, 36 miles, late in October; also the Chemung branch, 17 miles, late in November. The average distance in use during the year was 219 miles. Total earnings for the year, \$809,777. Earnings per mile, \$3,697.

In January, 1850, that section between Elmira and Corning, a distance of 18 miles, was opened and added to the line, and also the Newburgh branch, leading from Chester to Newburgh, 19 miles in length; and in September, 41 miles more, extending from Corning to Hornellsville, were put in operation. The average length of road in use during 1850 was 320 miles. Earnings for the year \$1,600,300—\$5,000 per mile. Excess of earnings over 1849, \$1,303, or 35 per cent.

The road is now in operation to Cuba, 369 miles, which with the Newburgh branch and the Chemung branch make in all 405 miles of road now in use. Based upon the foregoing comparison of the earnings of 1849 and '50, without any increase upon last year, the earnings for the first four months of 1851 will be.....\$673,333

Deduct 10 per cent., the earnings for January and February being generally much below the average earnings for the other months of the year.....67,333
 606,000

For the remaining eight months, the road being open to the lake, and working 464 miles at last year's rates.....1,546,667

Add 35 per cent. upon last 8 months, as the increase contingent upon the lake connection.....541,333

Add estimated contributions from Legget's Gap railroad, Jefferson and Canandaigua railroad, Dunkirk and State Line railroad, and the North East railroad—the two last connecting Dunkirk with Erie, Pa., all of which are under contract, and probably will be finished in August next—say 10 per cent. upon the earnings for the last four months, the earnings in September, October, November and December being much larger than the average of other months of the year.....77,333

Making the earnings of 1851.....\$2,771,333
 Deduct running expenses, 50 per cent....1,385,667

\$1,385,667

From which deduct the interest chargeable in the year 1851:

*First mortgage bonds, Nov. int..105,000
 Second " " March do.140,000
 " " " Sept. do..140,000
 Old certificates for year.....35,000
 Income bonds, Feb.....122,500
 " Aug.....122,500
 Convertible bonds, Aug.....122,500
 787,500

\$598,167

Deduct, say, six per cent. interest for the whole year upon the amount of stock issued.....347,400

Leaving a surplus of.....250,767 to be applied to other purposes.

Agreeable to the foregoing estimate of the earnings for the last eight months of 1851, \$2,165,333, the earnings for the twelve months after the opening to Lake Erie will be.....\$3,248,999
 Add 15 per cent as the natural increase of 1852 over 1851.....487,199

And the earnings for 1852 will be.....3,735,198

Deduct running expenses, 50 per cent.....1,867,500
 Interest upon indebtedness..1,015,000
 2,882,599

Leaving a balance of.....852,599

Equal to 14½ per cent upon the capital stock of the company now issued.

ESTIMATE FOR 1853.

Receipts.....\$4,000,000
 Running expenses.....2,000,000
 Interest on debt.....1,015,000
 3,015,000

Surplus.....985,000

Equal to 17 per cent upon capital issued.†

* Interest for May is deposited with the Comptroller in conformity to the law of the State, releasing the \$3,000,000 State lien, and will be paid by him.

† Exceeding by 8 per cent the estimated earnings as per last year's address.

‡ In forming estimates of the receipts of the road after its completion in May next, the directors can discover no method by which they will not be likely to exceed the foregoing figures.

In making the foregoing estimates, the cost of running the road is put down at 50 per cent on the receipts. The expenses of 1850 were, upon the road 48 per cent, and 53 per cent upon the road and ferry combined.

But it is confidently believed by the board, that the expenses of operating the road after the extension to Lake Erie may, and probably will be, reduced much below the percentage of last year.

The labors of the board in constructing the road will soon terminate, and their attention will then be more exclusively directed to its economical management. As a first step to which, and in compliance with the public convenience, both of which demanded a change in the former ferry arrangements, the directors have completed an agreement with the Union railroad company of Rockland county [a company organized under the general railroad law of this state], by which passengers as brought to the company's pier, at the foot of Duane street, in this city. This will make a large annual saving, and passengers will reach the city an hour and a half sooner than by the way of Piermont. A way passenger train will, however, be run to Piermont, and the milk and freight business will be continued there as formerly.

That these estimates may not appear extravagant, the directors call the attention of the stockholders to the following important tributaries to the road, their length and connection, some of which now are, and most of the others will be, in operation during this and the coming year.

1st. The Newburgh branch, 19 miles long, commencing at Chester, and terminating at Newburgh. A valuable outlet for many kinds of freight.—Nearly two millions of feet of lumber, brought over the road, have been deposited there during the past month. Newburgh will, at no distant day, become one of the most important, if not the largest mart for lumber in this State. This branch is the property of the company, and taken in connection with the Midland railroad to Boston, through Fishkill, Hartford and Providence, will be a most valuable part of the New York and Erie railroad.

2d. The Legget's Gap railroad, extending 48 miles from Great Bend, on the Susquehanna river, to the Lackawana coal fields, iron works, etc., at Scranton, and to be extended to Wilkesbarre and the Wyoming valley. The great value of this road to the Erie railroad, when it shall be completed in August next, will far exceed any present reasonable calculation.

3d. The Syracuse and Binghamton railroad, to connect those two important places, eighty miles distant from each other. This road is projected, and the surveys are being made.

4th. The Cayuga and Susquehanna railroad, 34 miles, connecting by steamboats from Ithaca upon Cayuga lake, the Central railroad with the New York and Erie railroad at Owego.

The receipts of the road for the past year, in operation to Corning were say.....\$1,600,000

It is reasonable to suppose that an addition of 20 per cent may be calculated upon the second year..... 320,000

Take now the line from Corning to Dunkirk, 168 miles, intersected, as it will be, during the year, by the several new roads, and suppose the way business on the line to amount to.... 400,000
Add for that portion passing over the road from Corning to New York.....400,000
800,000

Now, with the through travel and freight to Lake Erie, with the advantages of steamboat connection at Dunkirk, and the railroad to Erie, we have only assumed that we shall carry a hundred through passengers per day each way, at \$9.....540,000
Fifty emigrant passengers, \$5..150,000
690,000

Fifty tons of freight each way per day, including express freight, at \$20.....600,000

Total.....\$3,990,000

5th. The Chemung railroad, running to Jefferson, 17 miles, and with steamboats on Seneca lake, connecting Geneva, Rochester and Buffalo, and the Central railroad, with the Erie railroad.

6th. The Jefferson and Canandaigua railroad, 45 miles long, passing through thriving villages to Canandaigua. It will be completed in July next. This will make a continuous line of 62 miles from the Erie road to Canandaigua.

7th. The Williamsport and Elmira railroad, 60 miles long. A part of this road is graded, and the whole is under contract. It runs from Elmira to Williamsport, Pa.

8th. The Corning and Blossburgh railroad, extends 40 miles to the Bituminous coal mines of Pennsylvania, and connects the towns from which it derives its name. Heavy T rails are soon to be substituted for the present flat rails.

9th. The Buffalo and Conhocton Valley railroad, from Corning, 133 miles to Buffalo—52 miles will be completed in November next. It will pass through Bath, Batavia, and other important towns, and by a branch to Niagara Falls, and thence by a railroad now being constructed through Canada west, connecting with the Michigan Central railroad at Detroit. The distance from Buffalo to New York by this route, over the Erie railroad, is 40 miles shorter than by way of Albany.

10th. The Hornellsville and Buffalo railroad, 90 miles long. This road passes through a rich section of country to Attica, and thence direct to Buffalo. It will be finished in May, 1852. The distance from Buffalo to New York by this road is about the same as by the one last above named.

11th. The Dunkirk and State Line railroad, running from Dunkirk to the Pennsylvania State line, 28 miles. It will be in operation in August next.

12th. The North East railroad, 18 miles long, will be opened by the 1st August next, and will, with the Dunkirk and State Line railroad, connect Dunkirk with Erie, Pa.

Railroads from Erie west are in the course of construction, and will within one year, extend to Cleveland, from whence a railroad is now in operation to Cincinnati; also to Toledo, Chicago and Galena, and at no very distant day to St. Louis—forming, over the New York and Erie railroad, an unbroken line of railroad communication between New York and the Mississippi river.

Arrangements have been made with some of the best steamboats on the lakes, to run from Dunkirk to Cleveland, in connection with the Cleveland and Cincinnati railroad, and to Sandusky, Toledo and Detroit, in connection with the Mad River, Michigan Southern and Michigan Central railroads, forming daily lines in each direction.

With a continuous and unbroken railroad connection with the interminable west, in almost every direction, and opening upon Lake Erie at Buffalo, Dunkirk and Erie, [navigation commencing earlier and continuing later in the season at the two last points, than at any one further east], and with the numerous tributaries before referred to, at intermediate points within our own State, which in the aggregate are more than equal to this road in length, gathering and concentrating upon it the business adjacent to them; with a connection with the numerous steamers and propellers upon the lakes, and exchanging with them both passengers and freight; with a terminus on the Hudson river at Newburgh and Piermont, and the City of New York; with an unbroken line of wide track, as it soon will be, of 543 miles, between Erie and New York, and with cars wider, and consequently more comfortable than are afforded on any other route. With all these, and less distance in its favor, what reasonable man, who is at all acquainted with the present and rapidly increasing business of the country with which it connects, can for a moment doubt the certain and triumphant success of the New York and Erie railroad.

And, in conclusion, your board beg leave to remark, that in this period of our country's history, when private enterprise is achieving such results, the man of sober calculation is in little danger of finding the figures of his prophecy arranged hereafter in judgment against him. And while the board of directors entertain strong hopes of more flattering results, they have, in their estimates, been extremely cautious against encouraging undue expectation. Trustees, as they feel themselves to be,

for the largest private company in America, and perhaps in the world, they appreciate the responsibility under which they act; and they would be reluctant publicly to sanction what their judgment did not fully approve. Their labors in behalf of the company have been long and arduous, and their endeavor now is, and has been, faithfully to guard the interests entrusted to them, and to be prepared to surrender them unimpaired, and especially unstained, by private gain or personal advantage.

By order of the board of directors.

NATHANIEL MARSH, Secretary.

Office New York and Erie R. R. Co.,
New York, February 15, 1851.

RECEIPTS FOR 1849.

January.....	\$39,340 98
February.....	43,505 22
March.....	50,073 07
April.....	62,123 24
May.....	66,066 67
June.....	60,320 02
July.....	57,546 63
August.....	70,024 66
September.....	77,688 45
October.....	100,720 51
November.....	88,052 24
December.....	94,315 75

Total.....\$809,777 44

RECEIPTS FOR 1850.

January.....	\$112,955 25
February.....	102,212 91
March.....	130,578 68
April.....	141,984 89
May.....	148,226 55
June.....	120,324 42
July.....	104,053 22
August.....	129,206 12
September.....	150,017 57
October.....	160,579 91
November.....	150,147 92
December.....	149,985 85

Total.....\$1,600,273 29

RECEIPTS FOR 1851.

January.....\$144,909 30

(From the London Railway Journal, for Nov. 1850)

REMARKS UPON THE COST OF REPAIRS OF LOCOMOTIVE ENGINES. (WRITTEN JAN. 1849.)

Made with a view of showing the financial advantage gained to a railway company, by keeping its whole stock of engines in a full state of efficiency in perpetuity, in preference to the system advocated by some parties of considering ten years, or a somewhat longer time, as the "life" of an engine, and that a greater or less number of new ones must of necessity be either made by the company, or purchased at different periods, to replace "worn out" ones.

The practicability of maintaining an engine at her full effective value, cannot be denied, and although experience might be supposed, by this time, to have made obvious the actual cost of so doing, yet the original old stocks of most of the railway companies, have been frequently, from time to time, relieved, or, in other words, indirectly repaired, by the introduction of new engines, built nominally for the traffic of branch and extension lines.

These engines, which have been, for the most part, of a very much larger and more expensive class than the traffic of branch lines has been in most instances proved to require, have been paid for out of capital, and having been appropriated to the purposes of all general traffic, their services in the first bloom of newness and efficiency, have of necessity gone to some extent (and in many cases greatly so) to relieve or diminish the current expenditure.

The time, however, must shortly arrive, when these additions to stock must cease, and the whole requisite stock be either maintained or replaced by new out of the current earnings of the companies, and the following calculations, made from experience in working engines, without the aid of occasional new stock, will tend to render more perspicuous what the actual cost of repairs must ultimately be.

mately be, and will show the pecuniary advantage of maintaining over renewing stock.

I would observe, that it is asserted by the executive of some of the leading railways, that their stocks are fully maintained, at their present rates of current expenditure, and that there is no necessity for appropriating any special fund in reserve for depreciating or renewing. I admit that depreciation need not exist, and I contend that it ought not, but, that it really does not, I deny, and I defy any railroad company to substantiate, by fact, the assertion that it does not. [That is, our author means if the stock be not fully kept up in timely repairs.—Ed. R. J.]

In considering the difference of cost between maintaining and replacing or renewing "plant," I propose to speak of engines individually, assuming a certain quantity of work to be performed. Of general depreciation it will be necessary to speak of the stock more collectively.

The accounts of the various railway companies, and occasional published remarks, have represented the current cost of repairs, per engine, at from 2d. to 3d. per mile run, and superintendents have vied with each other in the smallness of their amount of expenditure on this head. The one who worked at 2d. of course priding himself greatly on his superiority over his neighbor at 3d. Not being aware of their respective systems of calculating mileage, I am inclined to believe that the charge of 3d. is made on a much more honest amount of work done, and that such a charge would at any time show a stock more like what it ought to be than the other.

I consider the only fair and proper method of charging expenses to be on the number of miles in actual service drawing trains, whether of loaded or empty vehicles. Necessity will frequently require that engines be sent out on trips, or run "return trips" empty or without a load, but these distances have no right to be placed to their credit of mileage account in repairs. A good engine should never be within giving a few occasional miles empty.

I propose to show calculations made upon an extreme, and also upon a more moderate amount of work done. Premising, however, that they have been based upon the assumption that the different amounts be fairly and judiciously expended. Books will show an amount of expenditure of money, but the condition of the stock can alone show whether talent and prudence have been exercised in the appropriation of it, and on this account I submit, that it is the bounden duty of every board of directors, to have an annual valuation, if not of all their floating locomotive stock, at least of each engine specifically; and, furthermore, I contend that the character of locomotive superintendents generally, is somewhat compromised by their not insisting on such valuation being made.

Let us suppose, then, that an engine of the best manufacture, say £2500, was newly set to work on the first of January, 1849, and that either the same engine must stand ready for work newly repaired, and in no single respect inferior in effective value on the 1st of January, 1859; or that she be worked to an extremity during the coming ten years; sold at the end of that time for what she would fetch, and a new one precisely similar, ready to take her place. I will first comment upon the latter supposition, viz., that it be the intention of her owners to replace her with a new one in ten years, and consequently to get as much work out of her as possible during that period, at the lowest possible current cost.*

Assuming then, that by extraordinary good luck she runs 300,000 miles in ten years, as follows—140 miles per day, five days every week, or in round numbers 3000 per month, for the first twenty months up to the 31st of August, 1850. This would give a total of 60,000 miles every two years, allowing the last four months to refit her for commencing work again.† And in addition to this we have an

*2d. per mile in my prefatory remarks, is, I believe, the lowest quotation for repairs that has yet been exhibited.

† Taking into consideration the various sources of interruption which occur to retard thorough repairs, four months would be found not too much time to make her fit to resume her station.

allowance of two days every fortnight for overhauling and casualties.‡

Upon the above distance, viz., 300,000 miles, let us suppose 2d. per mile appropriated to repairs. Now, in repairs there are two specific items of the most expensive nature, which cannot be set aside, viz. fire-boxes and tubes,* as upon the perfect state of these depends the entire well-doing of the engine, or nearly so. I will therefore, first make a specific charge for these.

To be continued.

Maine.

York and Cumberland Railroad.—This road was opened to Gorham yesterday, to convey stockholders to their meeting at Gorham. The cars, however, ran many times between this city and Gorham, without charge, and were crowded almost to suffocation by the press of a delighted public, and every thing passed off agreeably throughout the day.

The enterprising contractors, Messrs. J. G. Myers, & Co., provided an abundant and rich collation at the hotel of Mr. Anis, at Gorham, who exemplified tact, liberality and excellent taste in its fullness, excellency and good taste. Some four hundred persons partook of the repast.

A most interesting and satisfactory exhibit was made at the stockholders meeting, by the directors, through the president, Francis O. J. Smith, Esq., of the financial condition of the road, as this division of it will stand when fully completed and equipped, showing, we think, an unequalled success in its management by the directors, and a reliability of the corporation which few roads unfinished, in or out of New England, have ever attained.

The whole cost of the road, when completed, including depot and grounds in Portland, as well as stations, engine houses, and every denomination of property and equipment needed, will be on this first division, from Portland to Gorham, 10 miles and 8-10ths of a mile, \$360,000.

The company will have a funded debt, in its bonds on a term of years, of \$90,000—which is twenty-five per cent only, on this entire cost of the corporation's property.

Besides this funded debt, it has a floating debt of \$30,000. It has a further indebtedness to incur in furnishing the station houses, gravelling and finishing up the road and completing the equipment of \$33,541—the two sums making \$63,541.

To meet this floating debt and incomplete expenditures, the corporation have of subscriptions yet to be paid and unconditional, pertaining to this division of the road, \$68,269—being, if all should be paid in, an excess of \$4,728 of means to disencumber the corporation of all debts except its above named funded debt, of \$90,000.

The new subscriptions on the road will, it is believed, fully equal the deficiency in the collection of the \$68,269 of instalments not yet paid in; and if so, the corporation will be freed of all incumbrance substantially, beyond its funded debt.

But on the completion of the road through to Great Falls, the corporation is allowed by the construction contract, a diminution on the above cost of the division to Gorham, of \$2,000 per mile, equal to \$21,600—and thus reducing by offset the above funded debt to \$68,400—or to about 17 per cent only of encumbrance on the whole property of the corporation from Portland to Gorham.

The directors, determined to keep the progress

‡ She may either rest one day a week, two days together every fortnight, or four days a month, as convenient, but an average of one day a week will not be found too much in the aggregate.

§ Having proposed to show calculations on an extreme, and also on a more moderate distance run, I have adopted 300,000 miles as an extreme. I don't believe any engine ever did run that distance in ten years. I don't deny the possibility of its being done, but it would require a special qualification, and would absorb more time and care than could be devoted practically to any one engine. I have assumed it in order to give every advantage to the low figure of 2d. per mile for repairs.

* Whatever other repairs may be neglected or delayed, these two must be kept up. The loss of power from a defective boiler is incalculable.

of the work within the "clear and unquestionable" means of the corporation, have limited by contract the right of the corporation to enlarge its funded debt beyond 33 per cent, of actual construction previously secured, for other divisions of the road beyond Gorham. The route consists of three such divisions—the first from Gorham to Saco river—the second from Saco river to Alfred—the third from Alfred to Great Falls, and they open accounts with each division, and the stock-subscriptions on each.

But as the funded debt enlarges to take in, within the limits stated, any of these divisions, the bonds that represent it attach to the whole corporate property of each division—thus avoiding all classification of bonds. For each bond so added to the funded debt three times the amount toward the completion of the work is secured as the basis for the redemption of the bond.

There seems to be no more admirable and safe system conceivable than the one thus creditably adopted by the directors of this road. And being adhered to, as it must be, unless every bond holder submits to a departure from it, the credit of the bonds of this road will be undoubted wherever the conditions of them shall be made known.

We rejoice to see the affairs of this enterprise so prosperously exhibited, and it is the best commentary that business men can require upon the ability and prudence with which the directors manage them. It is destined to become an important artery of business to Portland, and with a trifling effort among the citizens of the latter, we believe it can be opened to Saco river by the first of next August—the total cash subscriptions which the directors require is only \$75,000. A single day ought to be enough to raise that subscription among our merchants and traders. Shall it not be done?—*Portland Evening News of Feb. 6.*

Malleable Iron.—This branch of useful manufactures is probably prosecuted to a greater extent in this city than in any other part of the country; a recent authentic account stated that but two establishments of the kind existed in all New England, and those two in Massachusetts; and we have no information of their existing in any great numbers elsewhere. In a statement of a late number of a scientific work, it is said that the common grey Pig Iron may be used in its manufacture; but we are assured by persons well skilled and long used to making it, that it is not so, and that it requires pig iron of a peculiar quality containing certain elements not known to exist in more than three or four places where iron ore is found. The pig iron is submitted to a melting heat until it is in a state of fusion, when it is refined through the action of an air furnace, until all impurities are separated from it; it is then poured into moulds of the required shapes for the articles intended to be made.

After cleaning the castings of the sand which adheres to them, they are placed in the annealing furnace, packed in metallic oxide; and submitted to nearly a white heat for several successive days.

These are the prominent features of its manufacture. Some assert that the common grey pig originally contains no carbon, and that the carbon visible in the manufacture of it is given by the action of the air furnace, and afterwards divested of it by the annealing process. This we understand to be a mooted question, not only with scientific men, but with practical manufacturers. The subject is now under consideration by one or two gentlemen of this city, who are making an analysis of it, and will doubtless render a reliable opinion.

As to the use to which malleable iron is put, few can estimate their number and value—gas and hot air pipe fittings, seal work, stove trimmings, belt fixtures, entire shoe kits, ferules, hoes and rakes, entire harness trimmings, a great variety of trimming about carriages, tin workers' machines, coffee mill trimmings, and in fact almost every conceivable article made from iron. The members of a firm engaged in its manufacture in this city, were induced about a year ago, to enumerate those that came immediately under their observation, and they reached the almost incredible number of not less than 2000.—*Newark Advertiser.*

Patent Machine Picket Fence

SIX DIFFERENT STYLES of this fence are now made by patent machinery; and is by far the most economical fence for Railroads, Farms, Yards, etc., ever yet offered to the public, costing only from 4 to 30 cents per foot, according to pattern; and is so put up as to be shipped at a trifling expense. Full particulars will be furnished, by addressing the subscriber, to whom all orders should be sent.

N. STRATTON, Troy, N.Y.

Patent Metallic Measuring Tapes.

A New Article, made from Vegetable and Mineral substances combined, entirely free from the objections made to all other tapes, arising from contraction and elongation in consequence of atmospheric changes. Fine wires, of a material not affected by dampness or dryness, are woven into the warp of the Patent Tape, rendering it not subject to variations in length, like all other tapes heretofore manufactured. Instead of being merely painted, it is immersed in a peculiar solution of gums, and the fibres being solidly compacted together, it acquires substance and strength presented by no other article. They are enclosed in patent cases, superior to all others in lightness, strength and durability.

Imported and for sale only—together with every description of Drawing and Profile Paper, Tracing Paper in rolls, Vellum or Tracing Cloth, Field Books, Mouth Glue, and a general assortment of Engineer's materials—by
WILLARD FELT,
Importer of Stationary, 191 Pearl st., N. Y.

Boston Locomotive Works,

—Late Hinkley & Drury—
No. 38 Harrison Avenue,
BOSTON.

Locomotive and Stationary Steam Engines; Boilers; Iron, Brass, Copper and Composition Castings; Copper-smith's Work.

VAN KURAN RAILROAD WHEELS:
Wheels and Axles fitted, and all kinds of Railroad Machinery furnished at short notice.

Gay, Edward F.,

Columbia and Philadelphia Railroad, Philadelphia Pa.

AMERICAN RAILROAD JOURNAL.

Saturday, February 22, 1851.

The Stock and Money Market.

There has been an improved feeling in the stock and money market since our last. The advance in prices indicate an abundance of money, and a confidence of its continuing so.

In addition to the ordinary operations in the "fancies," a very large amount of western bonds have been disposed of within the last fortnight. A greater amount are now before the market, or are soon to be offered for sale. The demand still continues good. Railroad bonds on long time, based upon ample security, are equal in safety to any securities that can be made, and as they are sold at rates that secure to the purchaser an interest of from 8 to 9 per cent, there can be no reason why these should not be eagerly sought for, so long as money continues abundant. As the money for them is wanted only on instalment, which frequently extends the payments through one or two years, the sales of large sums do not disturb the market as it would were they immediately closed up.

The past year has been very favorable to the progress of roads. The present promises to be equally so. The foreign and California news is favorable. The fall in cotton will hasten forward the crop, so that its effects will not be felt for the present. In the interior, a vast amount of agricultural produce will come forward as soon as the season opens, and will give an active business to railroads and canals. We may at least expect another very prosperous season before the ebb of the present flood commences.

The means for the completion of most of the great leading lines in various parts of the country are now secured. No reverse in the money market would check their progress. The demand of these lines have operated adversely to the interests of the minor ones, as the former offer a more attractive and popular security for the investment of capital; and as those connected with their management, may be said to have control of the money market. These men must supply their own wants first, and their demands often cause the securities of companies of less magnitude to be shoved aside.

The completion of the great lines before spoken of will not only relieve the market of the immense load now resting upon it, but will release from their present avocations, a great number of able men in railroad affairs, whose services will then become available in aid of weaker lines. The credit of the roads completed will in a greater or lesser degree be extended to tributary lines, so that capital already invested, will be used as the basis of further loans. The railways of the south and west can never again receive such a shock as prostrated them in 1837-8.

The bonds of what may be termed the first class "Provincial roads," are selling at from 85 to 90 net. Those of companies less strongly backed may sell a little less. The above bids fair to be the average rate for some time to come.

The rail market abroad continues to be depressed. The expectations of a speedy rise have not been confirmed. The anticipated increase of duty on imported iron, has flattened prices. We have no reason to expect any great change in the prices abroad, unless our duties are increased. The capacity to make in England and Wales is greater than the demand, and a large profit would stimulate the make far beyond the wants of roads. The foreigner, with his immense investments, will be content with a very slight profit for a long time to come.

SALES OF STOCK IN NEW YORK.

	February 21. Sales.	February 14. Sales.
U. S '67 Loan.....	115½	115½
Erie R.R.....	84½	81
Harlem R.R.....	68½	68
Stonington.....	41	43
L.I. R.R.....	24½	21
Norwich & Wor....	61	65
Albany & Sch'y R.R.	—	90
Del. & Hudson.....	134½	—
Rochester & Syracuse	—	112½
Reading.....	62½	63
Morris Canal.....	20½	21½
Erie income.....	94½	93½
Hudson River.....	—	81
" Bonds.....	104½	102½
Utica and Sch'y R.R.	125	123
Canton.....	60	62
Farmers Loan.....	66	66

SALES OF STOCKS IN BOSTON.

	Feb. 20.	Feb. 13.
Old Colony Railroad.....	67	67
Boston and Maine R.R.....	106	106
Eastern Railroad.....	102½	102½
Fitchburg Railroad.....	111½	111½
Michigan Central Railroad.....	94½	95
Northern Railroad.....	72½	72
Vermont Central Railroad.....	25½	34½
Vermont and Mass. R.R.....	30½	29
Western Railroad.....	107	108
Ogdensburg Railroad.....	39½	37
Rutland Railroad.....	59	52½
Portland, Saco & Portsmouth R.R.—	99½	99½
Boston and Worcester Railroad.....	106	105½
Rutland Railroad Bonds.....	88	86
Vermont and Mass. R.R. Bonds.....	—	88
Ogdensburg Railroad Bonds.....	99½	99
Vermont Central R.R. Bonds.....	92½	95

Norfolk County R.R. Bonds.....	74	72
Boston and Providence R.R.....	85	85
Philadelphia, Wilm'gton & Balt. 31	31½	31½
Concord R.R.....	55½	55½
Connecticut river R.R.....	75	76
Cheshire R.R.....	61	62
Boston and Lowell.....	—	115
Boston, Concord & Montreal....	43	43
Nashua & Lowell.....	109	108½
Fall River Railroad.....	—	92½
Sullivan Railroad.....	20	20
Manchester and Lawrence.....	90	90
Worcester and Nashua.....	51½	51

Metallic Measuring Tapes.

Engineers will do well to examine an advertisement of the above article in another column. The warp or woof of the tape is made of a composition pure, which is sufficiently flexible, and preserves its shape and dimensions under all conditions of weather. Its superiority for this reason will be readily understood by engineers. In other respects it is a much more perfect article than any in use. In its preparation, the tape is immersed in a liquid gum, which when cooled, gives it a polish and compact appearance, as if composed of similar materials.

Massachusetts.

Western Railroad.—Below we give an abstract of the report of the directors of this road for the past year:

RECEIPTS AND EXPENDITURES.

The income from various sources, during the year, has been:—

From passengers.....	\$590,743 33
" freight.....	\$758,187 95
Deduct loss at Albany station.....	\$10,667 20
From other sources.....	747,250 62
	31,349 69
	\$1,369,513 88
Add interest accrued on sinking funds.....	48,057 57
	\$1,417,571 25

The expenses have been:—

For road repairs.....	\$121,655 83
" engine.....	47,123 59
" freight and passenger car repairs.....	67,527 67
" repairs of buildings.....	9,490 87
" transportation expenses.....	236,595 14
" general expenses.....	25,156 26
	\$607,549 39

Loss on Pittsfield and North Adams road....	7,851 59
Paid two dividends of four per cent each....	412,000 00
Paid balance of interest.....	286,857 33
Paid into sinking funds.....	50,000 00
Amount added to the sinking fund by accumulation of interest on that fund in the hands of the commissioners.....	48,057 57—1,412,315 85

Payment into the contingent fund..	5,255 40
Contingent fund Nov. 30, 1849.....	195,022 05
	200,277 45

Deduct A. Ware's defalcation.....	51,524 04
Deduct balance of errors and omissions in settling A. Ware's book.....	26,723 72—
	78,247 76

Total surplus of contingent fund, November 30, 1850.....	\$122,029 69
----------------------------------------------------------	--------------

There has been charged for new work the sum of \$44,978 50. This is an addition to the ordinary repairs, by which the road bed and machinery have been maintained in excellent condition.

CONSTRUCTION.

The total means provided have been:

From 51,500 shares of the Capital Stock.....	\$5,150,000 00
From £899,900 sterling bonds, bearing interest at 5 per cent, at £4,80 the pound sterling.....	4,319,520 00
From Albany 6 per cent bonds.....	1,000,000 00
Total means.....	\$10,469,520 00
Am't paid Albany sinking fund.....	\$100,000 00
Am't paid Mass. sinking fund.....	146,447 52
Am't paid the sinking fund from proceeds of shares.....	213,111 10
	459,578 62
Net means provided.....	\$10,009,941 38
The total cost of road and equipment, as per table annexed.....	9,963,708 94

Leav'g a bal. of construction fund unexpended..... \$46,232 44

The bridge over the Connecticut river must be rebuilt ere long for two tracks instead of one. A part of this expenditure will be chargeable to balance of construction fund.

No inconvenience is experienced for the want of the second track of nine miles between Worcester and Springfield, at present. The laying of the track may be postponed.

SINKING FUNDS.

The value of the Mass. sinking fund Nov. 30, 1850, is.....	\$614,090 48
Value of the Albany fund.....	291,070 12

Total value of both funds..... \$905,169 60

PITTSFIELD AND NORTH ADAMS RAILROAD.

The receipts of the road have been as follows:—

From passengers.....	\$16,643 07
" freight.....	15,871 50
" mails, rents.....	90 45
	32,605 02

The expenses have been:

For road repairs.....	\$3,924 96
" engine repairs.....	350 79
" car repairs.....	708 98
" transportation expenses.....	7,443 79
For general expenses.....	998 13
	13,156 61

Net earnings..... \$19,148 41

Amount charged to Trustees of P. & N. A. R. R. guarantee fund account, for deficiency..... 7,851 59

\$27,000 00

Paid two dividends of 3 pr. cent each 27,000 00

New York Railroads--Report of the State Engineer.

We give in our present number, the annual report of the State Engineer, accompanying the returns of the New York railroads. The tables accompanying the reports, and which present a complete abstract of the returns, we shall publish as fast as we can find room for them. As statistical documents they are very interesting and contain more valuable information in relation to the running of railroads than can be found in the returns of any other State.

Adding to the roads returned, those in operation, and we have an aggregate length of line of 1448 miles in this State. The present year will add very largely to this amount. Among the leading lines to be opened are the Erie, Hudson river, Harlem, and the Rome and Watertown. A number of other lines will be opened within the next twelve months.

Railroads in the West.

Lafayette and Indianapolis Railroad.

It is very difficult for a person whose attention is not particularly devoted to the subject, to form an adequate idea of the extent of the railroad enterprises in progress in the west. It is almost as equally impossible for us in the Eastern States to realize the importance of the leading lines in that section, both from their relation to the general commerce of the whole country, and their local business. In external appearance all parts of the great valley have sprung simultaneously into that maturity, which requires, and which can now supply to itself all those instruments necessary to the convenience of business, as well as the comfort and gratification of its inhabitants. Railroads there are felt to be important, just in proportion as its people are removed from a market, and the great business centres of the country; and as the extremely low cost of construction, places these works within the ability of the people of every fertile and tolerably well settled section, with such aid as may be obtained by a pledge of their own means, it is no exaggeration to say, that they are engrossing the attention of every town and county in that portion of the Union.

Most of the lines there projected have been selected in reference to the wants of the community at large, rather than the interest of particular localities, the uniform character of the country allowing the greatest freedom in the choice of routes. In the location of routes, the connection of the leading avenues of travel, and the great depots of business, far outweigh all considerations of minor importance. The route of commerce from the Atlantic States to the west, must be by the great lakes. These, by the Erie canal, have their outlet at New York, from which they penetrate at least fifteen hundred miles into the interior. The Mississippi and its branches are the great channels of communication with the Gulf of Mexico. Through the former channels are received the manufactures of the Eastern States and foreign importations. Through the latter, the tropical productions of the gulf, such as sugar, molasses, coffee, etc., together with some other heavy articles of merchandise. For nearly one thousand miles, the great lakes on the one hand, and the Ohio river on the other, run nearly parallel, though in an opposite direction. The natural lines of railroad therefore in the west, and such as are coincident with the lines of business, are those which connect these two great water courses. These not only open outlets for the products of the intermediate country, but are the channels through which the merchandise received through the great avenues referred to, pass from one to the other, to be distributed over the country. The natural lines of trade are always at right angles with parallels of latitude, though they may also exist in other directions, from difference in soil or the pursuits of its inhabitants.

In this view, one of the most important points in the United States is the south shore of Lake Michigan. This, to a certain extent, is the key of the railroad system of a very important portion of the country. This lake, in connection with Lake Superior, presents an impassable barrier for five or six hundred miles in a northern and southern direction, to the continuation of railroad lines running east and west. All these must sweep around its southern boundary. The recent contests between the two Michigan railroads for the exclusive right

of way through the northern part of Indiana proves the value of this monopoly.

The same point, too, must be the terminus of a number of very important lines. One of these will run to the Mississippi at its junction with the Ohio—and another will be extended to Indianapolis, and thence to Louisville and Cincinnati. These are the great points of trade on the Ohio, and must always have a very intimate business connection with Lake Michigan. They will be connected with the extreme south, not only by the Ohio, but by lines of railroad rapidly approaching their completion. From these cities, roads are also in progress to Indianapolis, which will be completed in about a year. From Indianapolis, these lines will be carried to Lafayette by the *Lafayette and Indianapolis railroad*. The grading of this road is entirely under contract. The necessary amount of iron has been purchased, to be delivered early in the spring, and the whole line will probably be put in running order in about a year from the present time. The distance from Lafayette is the only portion of this great through line that yet remains untouched. Operations here must soon be commenced.

In looking at a map of the country, we are more struck with the importance of the Lafayette road from its relation to other railroads, and as a portion of a great through line, than as a local work. But in this respect it occupies the exact route for a large local traffic, in running at right angles to the lake, and to the Erie and Wabash canal, the outlet for the produce of northern and central Indiana.—It traverses one of the finest portions of that State, or of the west, the produce of which must pass over this, either in a northerly or southerly direction. As far as fertility of soil, capacity for production, or extent of territory dependent upon it are concerned, its advantages are equal to almost any line in the west.

The resources of the company at present are \$225,000 stock subscription, and the proceeds of \$350,000 of bonds, issued for the purchase of iron. Of the stock subscription \$75,000 have been expended on the road, leaving \$150,000 yet available for grading, etc. The additional sum of \$150,000 is also expected from the corporate subscription of the city of Lafayette, which, with the foregoing, will furnish ample means for the construction and equipment of the road.

The following, copied from the engineer's statement, shows the general character of the route:—

"The entire length of road from the depot at canal in Lafayette to the depot in Indianapolis is 62.36 miles. Of this, 54.43 miles are tangent lines, and 7.93 miles curved. The minimum radius of curvature is 1910 feet, and is employed but for a short distance, and in but one instance; the radius for 7 miles of the curved portion of this road is 5,730 feet. Total amount of curvature 441°. The maximum gradient is 42 feet per mile, and is employed only in ascending out of the valley of the Wabash. The ruling gradient in the direction of the heavier transit is 35 feet per mile. The ground over which the road passes, except at the crossings of four valleys, is remarkably smooth and unbroken, and a general view of the profile of the road exhibits a succession of light and gentle inclinations, barely sufficient for the thorough drainage of the road bed. No mechanical or engineering difficulties occur along the whole line; but the work is of remarkably light and easy character.—But four considerable streams are crossed—the aggregate spans of which are 700 feet. A full supply of gravel for ballasting of the road can be obtained from the cuts. There is an inexhaustible supply of timber along nearly the whole route, and excellent stone at either end of the road.

Below I furnish an estimate of the cost of completing the road ready for the iron.

To finish the entire grubbing and grading.....	\$67,872 00
To finish the entire grubbing and bridging.....	16,642 00
Timber for superstructure, 62.36 miles, a \$641 25.....	39,988 35
Timber for superstructure, for 1 1/2 miles turn outs.....	961 87
Laying track, a \$350.....	21,826 00
	\$147,280 22

DIRECTORS.

Cyrus Ball, Lafayette.
 Thomas T. Benbridge, do.
 Joseph S. Hanna, do.
 John Purdue, do.
 William F. Reynolds, do.
 Albert S. White, do.
 Samuel Cason, Boone County.
 H. G. Hazlerigg, do.
 Samuel S. Strong, do.
 William Zion, do.
 Harvey Bates, Indianapolis.
 James Blake, do.
 Nathan M. Stockwell, New York.
 A. S. WHITE, President and Secretary.
 CYRUS BALL, Treasurer.
 BACKUS FORD, Engineer.

Tennessee.

Memphis and Charleston Railroad.—The vote was taken in Marshall county, Miss., on the 7th ult., on the proposition to authorize the board of police to subscribe for \$100,000 worth of stock in the Memphis and Charleston railroad. As far as heard from, the vote stands 859 for it, to 149 against it. This stock is to be taken on condition that the road is run through Holly Springs.

Maryland.

Business of the Baltimore and Ohio Railroad.—The following are memoranda of the business upon the Baltimore and Ohio railroad, for the month of January, 1801:

	For passengers	For freight.
Main Stem.....	\$25,298 63	\$90,450 10
Washington Branch....	20,140 18	4,607 14
	\$45,438 81	\$95,057 24

Making an aggregate of \$115,748 70 on the Main Stem, and \$24,747 33 on the Washington Branch—the total being \$140,496 02.

The above compared with the corresponding month of last year, shows an increase of \$27,251-17, being \$24,501 99 on the Main Stem, and \$2,489 18 on the Washington Branch.

New York.

Hudson River Railroad.—It is stated that the Hudson river railroad company has taken a lease of the Troy and Greenbush railroad, for the remaining term of its charter, for \$19,250, being seven per cent on \$275,000—the capital of the said road: This movement has been made, probably, with the view of preventing the northern trade from going to the eastward. The Troy and Greenbush railroad is about six miles in length.

Pennsylvania.

York and Cumberland Railroad.—This new avenue of intercommunication, by which the city of Baltimore is brought into new and closer relations of reciprocal trade with the Cumberland and Juniata Valleys, and other adjacent sections of Pennsylvania, is now in regular and successful operation. The passenger trains between Baltimore and Harrisburgh run through in less than four and a half hours, at the cheap rate of two dollars and twenty-five cents for each passenger. The freight trains are also in regular daily operation, bringing to this market the products of the agri-

cultural industry of the region referred to. On Wednesday of the present week there was an arrival of a train of 70 full laden cars, some of which brought produce from the upper Juniata Valley, within ten miles of Hollidaysburg. The trade opens with every promise that it will be one of steadily growing value, importance and reciprocal benefit, both to Pennsylvania and Baltimore. —*Baltimore American.*

Hempfield Railroad.—We understand that this company have obtained the right of way through Virginia, so that no legal obstacle exists to the construction of the road. The Pittsburgh people are confident that it will not be built. They say that the line is an enormously expensive one, and that it cannot be carried out without the aid of Philadelphia. It is alleged that it would be bad faith in that city to aid a work which might injure Pittsburgh, considering what the latter has done for the advantage of the former, in the aid she has given to the Ohio and Pennsylvania, and Pennsylvania Central railroads. On paper the Hempfield line appears to be a good one. Whether it will be built is still a matter of doubt.

Ohio.

The first train of cars passed on the Cleveland and Columbus railroad on the 18th instant. We learn that a portion of the Cleveland and Pittsburgh railroad is to be opened to-day.

Railroad from the Cleveland and Pittsburgh Railroad to Akron.—The people of Akron and of that vicinity are actively engaged upon a project for a railroad from Hudson in the Cleveland and Pittsburgh, to the former place. About \$85,000 have been subscribed for this purpose. There appears to be a good prospect that the road will be built; and if so, it will very probably be extended so as to connect with the Ohio and Pennsylvania railroad, and perhaps still further southward.

Greenville and Miami Railroad.—The directors of this road for the present year, are:—E. B. Taylor, Isaac N. Gard, John Wharry, J. D. Farrar, Adam Koogler, Chris. Folkert, D. R. Davis, Lemuel Rush, John Deardoff, E. Deming, John Spray, Henry Arnold, Herman Gebhart, (Dayton) President.—E. B. Taylor, Engineer.—Phineas Pomeroy.

Stuebenville and Indiana Railroad Company.—The following are the directors for the ensuing year:

Daniel Kilgore, Stuebenville, Ohio; John Andrews, do. do; James Means, do. do; Wm. McDonald, do. do; James Parks, do. do; Thompson Hanna, do. do; Wm. K. Johnson, Coshocton, do. President.—Daniel Kilgore, Chief Engineer.—J. Blickensderfer, Jr. Assistant Engineers.—Abner L. Frazer, John Woodlee.

Missouri.

The bill for a state subscription of \$3,000,000 to the Pacific, and the Hannibal and St. Josephs railroad, has become a law of this State. The preliminary survey of the route of the Pacific railroad have been completed, and the final location of the road will be immediately determined upon.

Alabama.

Mobile and Ohio Railroad.—This company have recently held their third annual meeting, at which the old Board was re-elected namely:

B. E. Gray, Kentucky,	D. Stodder, Mobile.
J. W. Campbell, Tenn.	M. Waring, do.
J. M. Cunningham, Miss.	J. C. Hodges, do.
Sidney Smith, Mobile.	C. Gascoigne, do.
J. Emanuel, do.	J. A. Campbell, do.
F. B. Clark, do.	G. N. Stewart, do.

John Bloodgood, Mobile.

We have not yet read the report of the company, but we understand that the graduation upon the first thirty-three miles is now nearly completed.

This portion will be ironed and in operation, it is believed, at any early day the coming summer.

It is estimated that the amount of land granted to this company by the general government will equal 1,000,000 acres, from which will be probably realized \$2,000,000.

The counties on the line of the Mississippi are preparing to vote subscriptions to the stock. From these sources about \$1,000,000 is expected to be obtained.

The company is represented to be in a very flourishing condition. Upon the receipt of its report we shall give a more detailed account of its operations.

New Hampshire.

Cheshire Railroad.—From the report of the directors of the Cheshire railroad, which has just been published, it appears that the entire cost of the road and its equipment to January 1st, 1851, including interest paid to stockholders prior to May 1st, 1849, and discount made on bonds and stock up to the present time, is \$2,739,318 10. By deducting such interest and discount, the real cost appears to be about \$2,300,000. The gross receipts of the road for the year ending with 1850, have been \$208,414 38—increased over the year preceding \$43,450-84,—being something more than 25 per cent. The expenses of operating the road the past year, including the sum of \$12,710 42 for State taxes, and for repairing the damage done in Walpole by the July flood, have been \$92,587 42. Balance of earnings over expenses, \$115,826 96. Of this sum \$84,654 63 have been paid for the interest on bonds and debts of the company to January 1st, 1851, which includes \$16,666 95 paid as extra interest. This leaves in the hands of the company of the earnings of the road the past year, \$31,172 33. Two of the largest class locomotives have been purchased this year, making the whole number eleven. The floating debt is \$134,143 36.

Manchester and Lawrence Railroad.—At the annual meeting of the stockholders of the above named road, holden at Manchester yesterday, Edward Crane, Benjamin E. Bates and Thomas W. Pierce, of Boston, John Tenney of Methuen, Geo. H. Dodge of Hampton Falls, John N. Anderson of Londonderry, and Wm. G. Means of Manchester, were chosen directors of the road for the ensuing year, by a very large majority.

Indiana.

Northern Indiana Railroad.—The Chicago Tribune states that the Northern Indiana railroad bill passed both houses of the Indiana legislature, on the 3d inst. It authorizes a road from Michigan city east—gives no monopoly, no right to connect with other roads. It gives the right to borrow money at 8 per cent, and to sell bonds at 90. Provides that the road shall be built to Toledo in six years, and that it may pass by the way of La Porte, South Bend, Elkhart, and Bristol, to Michigan State line.

The line between Chicago and Michigan City is not touched by the Indiana legislature.

Massachusetts.

Troy and Greenfield Railroad Company.—The annual meeting of this company was held at Charlemon, on Wednesday, the 4th inst. The meeting was very large, and a becoming energy and spirit was manifested. The reports of the directors and treasurer were presented.

The following gentlemen were chosen as directors for the ensuing year:—

Columbus Tyler, of Boston; John L. Tucker, of Boston; Henry Chapman, of Greenfield; Cephas Root, of Greenfield; E. G. Lamson, Shelburne Falls; R. H. Levitt, of Charlemon; John Porter, of Buckland; E. Rice, of Florida; James E. Marshall, of Adams; E. S. Hawks, of Adams; L. C. Thayer, of Adams; S. V. R. Hoxie, Williams-town; Daniel Wells, of Cambridge.

The Hudson River Railroad.

The Troy Post gives the annexed statement of the arrangements between the Hudson River and the Troy and Greenbush roads:—

"The Hudson River company have obtained a lease of the Troy and Greenbush railroad, with all its implements and fixtures, for the term of its charter—30 years—and for all future renewals, paying for the same 7 per cent annually on \$275,000—payments to be made semi-annually. The lease requires of the Hudson river company that they shall run all their through trains directly to and from Troy, thus making this the northern terminus of their road. They are also required to keep up the local business of the Troy and Greenbush railroad, running the cars as now for local accommodation and transportation.

"We are informed that the Hudson river company will, immediately after coming into possession of the Troy and Greenbush railroad, construct a double track, straightening the same so as to lessen the distance, and putting down a new and heavier rail than is now used. Some \$150,000 will be expended for this object the ensuing summer, and it is expected that the work will be completed, a new track or tracks constructed through the city—everything in order—sometime during the ensuing fall.

"The Hudson river railroad will be completed between Hudson and Greenbush in May next, when trains will be run direct from Troy to Hudson, and in September the whole line will be finished and the cars running from Troy to New York."

North Carolina.**Wilmington and Raleigh Railroad.**

We have received the 15th annual report of this company, submitted at a meeting of its stockholders held at Wilmington on the 14th of November last. The receipts for the year ending September 30th have been as follows:—

From through passengers.....	\$193,706 67
Way passengers.....	62,382 62
Steam boat freights, meals, &c.....	14,229 76
Railroad freights.....	71,051 26
Transportation of mail, rents, &c.....	80,954 81
	\$422,325 12

Expenditures.

Steamboats.....	12,838 96
Fuel.....	27,586 82
Subsistence and pay of officers and crews....	63,106 38
	\$103,532 16

Transportation.

Repairs of locomotives, including one built in shop.....	15,671 45
Cost of 2 new locomotives.....	15,069 26
Coaches and cars including cost of 4 new passenger and 10 new freight cars.....	19,587 81
Pay of locomotive runners Cond'rs., hands and station expenses.	48,688 51
	\$99,017 03

Road Repairs.

Pay of overseers and hands.....	25,112 24
Subsistence and clothing.....	10,124 99
Cost of materials.....	36,736 69
	\$71,973 92

Office expenses for stationery, &c.....	241 42
	274,764 53

Leaving a balance in favor of receipts over expenditures for ordinary purposes of..... **\$147,560 50**

The cost of reconstruction has been as follows, viz:—

Iron.....	\$451,926 56
Sills or cross ties.....	20,842 58
Spikes.....	24,508 06
Labor of relaying.....	6,896 29
	\$504,973 49

This amount has been paid for as follows:—

Company's mortgage bonds, payable in London in 1867.....	\$355,555 56
Bonds to the United States for duties, in 1, 2, 3, and 4 years.....	39,424 13
Bonds payable at bank.....	32,600 00
From the current receipts of the year	77,393 80
	\$504,973 49

The net amount of profits for the past year, including cash on hand at its commencement, was..... **161,845 69**

This sum has been appropriated as follows:—

To payment of debt.....	68,945 35
" interest.....	62,341 89
Miscellaneous.....	3,942 60
Cash on hand.....	27,065 85
	\$161,845 69

The debt of the company amounts to \$1,073,322 69, showing an increase of \$436,028 14 over the debt at the close of the past year. The company propose, if the authority can be obtained for that purpose, to increase its capital stock to \$2,500,000, which would about represent the cost of the road. The amount of stock disposed of is \$1,338,300. The amount of debt is \$1,073,322 69, and if the additional stock should sell at par, the stock to be issued to make up the proposed amount would yield \$88,377 31 above the liabilities of the company.

The net receipts for the past year were equal to about 6 per cent on \$2,500,000.

Since the last report, 8,733 tons of heavy rail have been received, and about 86 miles have been laid with this, and 27 miles with a flange rail, making the whole relaid 113 miles. It is expected that the relaying of the whole line will be completed early the present year. In speaking of the future prospects of the road the report says:

"Within a few months, you will own a road inferior to but few in our country in its substantial and permanent construction, and superior to all others in its freedom from curves, its easy grades and consequently to the speed, security and certainty with which the traveller may be transported over it. With our expenditures for repairs of road, repairs of locomotives, coaches and cars, greatly diminished, our receipts from all sources largely increased by reason of the improved condition of our road; with the Seaboard and Roanoke road on the north, the Wilmington and Manchester on the south, and the North Carolina road on the west, added as new tributaries to our line, have we not an assurance that that our hopes so long deferred will yet most certainly be realized, and that the amount of dividends to ourselves, rather than the amount of our debts to others may ere long be the leading subject of our deliberations."

The present prospects of the company are much more encouraging than at any former time. The work of reconstruction now going on, will constitute this a first class road, and greatly increase its capacity for business and reduce the cost of maintenance. During the past year, under all the inconveniences of the old and dilapidated track, the road has earned a dividend of about 6 per cent upon the cost of reconstruction. With its increased efficiency, its earnings must be largely augmented. The opening of the Wilmington and Manchester railroad, connecting the railroads of South

Carolina, Georgia and Alabama, and those of the north will be a great event for the Wilmington and Raleigh road, and must very largely add to its business. It will then become the favorite route for the through travel for a large portion of the south, much of which takes the steamers running from the northern ports to Savannah and Charleston.—

After years of struggling, in consequence of a faulty construction in the outset, and from the want of suitable connection with other lines of railroad, this seems to be now in a fair way of taking its place among our profitable lines of railroad. For this success it is indebted in no small degree to its present management.

The directors on the part of the stockholders for the present year are Alex. McRae, President; P. K. Dickinson, E. B. Dudley, Gilbert Potter, O. G. Parsley, W. A. Wright, and John D. Bellamy.

Ohio and Pennsylvania Railroad.

In our paper of the 25th ult., we published an abstract of the third annual report of this company. We now give the estimated cost of this work, as made by the chief engineer, S. W. Roberts, Esq., January 1, 1851.

Grading and bridging, 107 miles, 77 miles single track, and 30 miles double track, average cost \$6,682 per mile.....	\$715,000
Superstructure, with heavy iron rails, of 60 lbs. per yard, 107 miles of single track, and 7 miles of sidings, making 114 miles of single track, at \$8,000 per mile.....	912,000
	\$1,627,000

Turnouts, water stations, depot buildings and workshops.....	100,000
Estimated cost of construction.....	1,727,000
Contingencies and engineering.....	43,000
Add for land damages, purchases of land, right of way and fencing.....	135,000
	\$2,085,000

Estimated cost of railroad from Pittsburgh to Massillon.....	\$1,905,000
Equipment of locomotives and cars, for working the road the first year.....	180,000
	\$2,085,000

Grading and bridging 185 miles, 150 miles single track, and 35 miles double track. Average cost \$5,973 per mile.....	\$1,105,000
Superstructure, with heavy iron rails of 60 lbs. per yard, 185 miles of single track, and 10 miles of sidings, making 195 miles of single track, at \$8,000 per mile.....	1,560,000
	2,665,000

Turnouts, water stations, depot buildings and work shops.....	150,000
Estimated cost of construction.....	2,815,000
Contingencies and engineering.....	75,000
	2,890,000

Add for land damages, purchases of land, right of way and fencing.....	180,000
Estimated cost of railroad.....	3,070,000
Equipment for locomotives and cars for working the road the first year.....	300,000
	\$3,370,000

TREASURER'S REPORT.

Amount received from stockholders in payment of instalments.....	\$796,295
Amount expended for construction, grading and masonry.....	\$426,083 77
Land damages.....	49,072 75
Expenses.....	8,675 52
Engineering.....	38,932 61
Agents in New York.....	217,800 00
Treasurer and assistants.....	55,730 35
	\$796,295

USURY LAWS OF NEW YORK.

An Act to amend title three, of chapter fourth, of part second of the revised statute, entitled "Of the interest of money."

The people of the State of New York, represented in Senate and Assembly, do enact as follow:—

Sec. 1. No contract or agreement for the payment of money with interest, or upon which interest has been received, contracted for, taken or reserved after a greater rate than is allowed by law, shall be thereby rendered void. In any action brought on such contract or agreement, whenever the defense of usury shall be interposed, and a trial thereon shall be had, and it shall appear on said trial that a greater rate of interest has been received, contracted for, taken or received, than is allowed by law, the plaintiff shall recover judgment of the amount due of principal and legal interest only, beside costs; but if on such trial it shall further duly appear that the defendant tendered to the plaintiff such amount before the commencement of such action, the defendant shall recover his full costs of suit, and costs shall not be allowed the plaintiff.

Sec. 2. All acts, penalties and forfeitures in reference to the interest of money, inconsistent with the provisions of this act, are hereby repealed.

Maine.

Atlantic and St. Lawrence Railroad.—The receipts of this road for the six months commencing July 1, 1850, and ending December 31, show a very favorable result, and are as follows:—

From passengers.....	\$46,656 49
From freight.....	39,938 01
For mail service.....	1,628 50
For rents.....	3,765 12

\$91,988 12

The disbursements for operating the road for the above six months..... 30,298 21

Net earnings for the six months ending Dec. 31, 1850..... \$61,689 91

It will be recollected that the above receipts are from operating the road from Portland to South Paris, a distance of 47½ miles, which is as far as the road has been opened. The road will be opened in a few days from South Paris to Bethel a further distance of 22½ miles.

The whole cost of the road from Portland to South Paris including equipment and cost of its extensive depot grounds, wharves and stores, &c., in Portland, is \$1,521,646 96 which it will be seen gives to the stockholders on the investment for the last 6 months net earnings of the road, within a fraction of four per cent, or at the rate of eight per cent annually. This result has greatly exceeded the expectations of the most sanguine friends of road. There has been a gradual increase of the business of the road since it was opened, and there is no reason to doubt a continued and large increase of its business and receipts.

Pennsylvania.

A project is on foot to build a railroad from Pittsburgh to Olean, on the Erie railroad, and a convention is called for the 22d inst., to consider the plan. The Pittsburgh Gazette says:

We believe the plan which would now gain the largest number of suffrages is, a railroad to the mouth of Clarion, thence up that stream to its source, thence across the table land or summit between the sources of the Clarion, and those of the Allegheny itself—which, singularly enough, here flow in opposite directions—thence down the latter to Olean, or near it, where it would unite with the great road to New York. This would open a communication between western Pennsylvania and western New York, a most desirable consummation. Some are in favor of adopting the old Sunbury and Erie survey, at the point where it reaches the Clarion, and following it eastward to the Williamsport and Elmira railroad, reaching the New York and Erie railroad at the latter place. These questions of routes will be settled hereafter, and we think it would be premature to discuss them now. We will say one thing, however, if we de-

sire the aid of the friends of the New York and Erie road, we must aim for Olean; but if the people along the other route can dispense with that aid, then it will be only a question of distance, grade, etc.

Finances of Pennsylvania.

The finances of this State are set forth in the Governor's Message as follows:

Amount of debt due on the 30th November last, \$40,775,485; stock and cash in hands of commissioners of sinking fund, \$465,090; interest saved of special loan in the discontinuance of plane, \$400,000 which deducted leaves \$39,910,394, a decrease of public debt since 1848 of \$538,203.—About \$457,946 were extraordinary expenses, to avoid the inclined plane, and to complete the North Branch canal. These completed, nearly one million of dollars may be appropriated annually to the reduction of the public debt. The receipts of the treasury last year were \$5,438,131, being less than the estimates \$128,167. The estimated expenditures were \$4,034,000; actual payments, \$4,553,193. The estimates for 1851 are—receipts, \$4,296,000; payments, \$4,101,300.

New Jersey.

The annual report of the State directors of the joint companies (Delaware and Raritan canal and Camden and Amboy railroad company) was presented to the New Jersey Legislature on Wednesday, detailing the operations of the companies during the past year. The following table will show the number of, and receipts from passengers arrived over the road:—

	No.	Receipts for passage.	Transit duties to State.
From Philadelphia to New York (1st class).....	24,060	\$62,175 00	\$2,406 00
Phila. to N. York (2d and 3d class).....	19,114	34,840 34	1,911 40
N. Y. to Phil. (1st class).....	24,467	73,401 50	2,466 70
N. Y. to Phil. (2d and 3d class).....	36,815½	56,638 29	3,681 07
Excursion passage from Philadel. to New York.....	595½	2,362 60	119 10
Excursion passage from New York to Philadelphia..	122½	1,422 26	24 50
Way pass. from New York to Philadelphia....	787½	3,895 36	78 75
Way pass. from Philadelphia to Amboy.....	219½	548 75	21 95
Way pass. from New York to Bordentown.....	1,270	2,821 21	121 70
Way pass. from New York and Burlington....	2,774½	6,935 18	277 49
Way pass. from New York and Rancocas.....	465	1,047 34	46 50
Way passengers who pay no transit:—			
Between Spotswood, New York and Philadelphia....		1,464 34	
Between Hightstown, New York and Philadelphia.		3,140 33	
Between Sandhill, New York and Philadelphia....		1,230 99	
Passage money fm. steamboat and railroad passengers bet'en Trenton, Bordentown, Burlington, Bristol and intervening places and Philadelphia....		7,070 36	

ENGINEERS.

Atkinson, T. C.,

Alexandria and Orange Railroad, Alexandria, Va.

Clement, Wm. H.,

Little Miami Railroad, Cincinnati, Ohio.

Cozzens, W. H.,

Engineer and Surveyor, St. Louis, Mo.

Alfred W. Craven,

Chief Engineer Croton Aqueduct, New York.

Floyd-Jones, Charles,

Alton and Sangamon Railroad, Alton, Illinois.

Gzowski, Mr.,

St. Lawrence & Atlantic Railroad, Montreal, Canada.

Grant, James H.,

Nashville and Chattanooga R. R., Nashville, Tenn.

S. W. Hill,

Mining Engineer and Surveyor, Eagle River, Lake Superior.

Holcomb, F. P.

Southwestern Railroad, Macon, Ga.

Latrobe, B. H.,

Baltimore and Ohio Railroad, Baltimore, Md.

Miller, J. F.,

Buffalo and Conhocton Valley Railroad, Bath, N. Y.

Morris, Elwood,

Schuylkill Navigation, Schuylkill Haven, Pa.

Nott, Samuel,

Lawrence and Manchester Railroad, Boston.

Prichard, M. B.,

East Tennessee and Georgia R. R., Cleveland, Tenn.

W. Milnor Roberts,

Bellefontaine and Indiana Railroad, Marion, Ohio.

Roberts, Solomon W.,

Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Sanford, C. O.,

South Side Railroad, Virginia.

Steele, J. Dutton,

Pottstown, Pa.

Trautwine, John C.,

Civil Engineer and Architect, Philadelphia.

Tinkham, A. W.,

United States Fort, Bucksport, Me.

Troost, Lewis,

Alabama and Tennessee Railroad, Selma, Ala.

Whipple, S.,

Civil Engineer and Bridge Builder, Utica, N. Y.

HOTELS.

Exchange Hotel,

Adjoining Eastern Railroad Depot, BUFFALO, N. Y.

BY..... FISK & SPERRY, Late of Delevan House, Albany.

MANSION,

Corner of Maine and Exchange Streets, P. DORSHIMER. BUFFALO.

Barnum's City Hotel,

MONUMENT SQUARE, BALTIMORE.

This Extensive Establishment, erected expressly for a Hotel, with every regard to comfort and convenience, is situated in the centre and most fashionable part of the city, and but a few minutes' walk from the Railroad Depots and Steamboat Landings.

The House has lately undergone a thorough repair, embracing many valuable improvements, and will accommodate 250 Guests. BARNUM & CO.

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Cumberland, (Md.) Coals for Steaming, etc.

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Cumberland Steam Coal,

FROM THE FROSTBURG MINES, MD.

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Agent of Frostburg Coal Co.
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IMPORTER of Sheffield and Birmingham Goods. Also, Agent for the Manufacture of Telegraph Wire. 218 PEARL ST., NEW YORK.

Charles T. Jackson, M. D.,

STATE ASSAYER, late Geologist to Maine, Rhode Island, New Hampshire, and the United States, offers his services to his friends and the public in making any Chemical, Mineralogical or Geological researches that may be required for the improvement of Agriculture and the Manufacturing Arts. Particular attention will be paid to the exploration of mines and to assaying of ores of the metals.

State Assayer's office, 31 Somerset st.
Boston Sept. 3, 1850.**STEEL AND FILES.****R. S. Stenton,**

20 CLIFF STREET, NEW YORK,

AGENT FOR

J. & RILEY CARR,BAILEY-LANE WORKS, SHEFFIELD,
Manufacturers of Cast, Shear, German, Blister, and Spring Steel.

Of all descriptions, Warranted Good.

FILES.

Manufacturers of Machinists' Warranted Best Cast Steel Files, expressly for working upon Iron and Steel, made very heavy for recutting.

A full Stock of Steel and Files at all times on hand. 6m4

Walter R. Johnson,

CIVIL AND MINING ENGINEER AND ATTORNEY for Patents. Office and Laboratory, F St., opposite the Patent office, Washington, D. C.

Dudley B. Fuller & Co.,IRON COMMISSION MERCHANTS,
No. 139 GREENWICH STREET,
NEW YORK.**Manning & Lee,**GENERAL COMMISSION MERCHANTS,
NO. 51 EXCHANGE PLACE,
BALTIMORE.

Agents for Avalon Railroad Iron and Nail Works. Maryland Mining Company's Cumberland Coal 'CED'—'Potomac' and other good brands of Pig Iron.

Samuel Kimber & Co.,COMMISSION MERCHANTS
WILLOW ST. WHARVES, PHILADELPHIA.

AGENTS for the sale of Charcoal and Anthracite Pig Iron, Hammered Railroad Car and Locomotive Axles, Force Pumps of the most approved construction for Railroad Water Stations and Hydraulic Rams, etc., etc.
July, 27, 1849.

James Herron, Civil Engineer,OF THE UNITED STATES NAVY YARD,
PENSACOLA, FLORIDA.

PATENTEE OF THE

HERRON RAILWAY TRACK.

Models of this Track, on the most improved plan, may be seen at the Engineer's office of the New York and Erie Railroad.

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Railway Cars & Omnibuses.**F. S. & S. A. MARTINE,**

112 WILLIAM ST., NEAR JOHN.

ARE now receiving a large and complete assortment of Plain and Figured PLUSHES, of their own importation, which will be sold at the lowest market price, viz: Crimson, Maroon, Scarlet, Green, Blue, Purple, etc.

ALSO—CURLED HAIR, the best manufactured in market.

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IS prepared to contract for furnishing at manufacturer's prices—
Railroad iron,

Locomotive Engines,
Passenger and Freight Cars,
Car Wheels and Axles,
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For Inclined Planes, Suspension Bridges, Standing Rigging, Mines, Cranes, Derrick, Tilters, &c., by
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—AND FILES—IMPORTER OF THE
GENUINE WICKESLY GRINDSTONESNO. 8 LIBERTY STREET,
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THEODOLITES, TRANSIT COMPASSES, and Levels, with Fraunhoffer's Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by
E. & G. W. BLUNT,

No. 179 Water St., cor. Burling Slip.
New York, May 19, 1849.**IRON.****Iron.**

Pig Iron, Anthracite and Charcoal; Boiler and Flue Iron, Spring and Blistered Steel, Nail Rods, Best Refined Bar Iron, Railroad Iron, Car Axles, Nails, Stove Castings, Cast Iron Pipes of all sizes, Railway Chairs of approved patterns for sale by
COLEMAN, KELTON & CAMPBELL,
109 N. Water St., Philadelphia.

Stickney & Beatty, DEALERS IN IRON AND IRON MANUFACTURERS.

AGENTS for the Balt. City Rolling Mill, from which establishment they are prepared to furnish Ellicott's round, square, and flat bar iron, puddled and charcoal boiler plates and billet iron—also agents for the sale of the Laurel, Gunpowder and Locust Grove (Balt.) forge pig irons, Locust Grove and Laurel Irons for car wheels, Caledonian boiler blooms made from cold blast iron, Old Colony and anti-Eatam nails, Wm. Jessop & Son's steel, Coleman's blister steel and nail rods, sheet, hoop, band, oval and common English iron.

Nos. 18 and 20 South Charles st., Baltimore.

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. J. F. WINSLOW, President

Troy, N. Y.

ERASTUS CORNING, Albany

WARREN DELANO, Jr., N. Y.

JOHN M. FORBES, Boston.

ENOCH PRATT, Baltimore, Md

November 6, 1848.

Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phoenix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehanna river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.

REEVES, BUCK & CO.

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March 15, 1849.

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28 Platt street, New York.**Railroad Iron.**

THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron.

THOMAS B. SANDS & CO.,

73 New street,
New York.

February 3, 1849.

Iron Store.

THE Subscribers, having the selling agency of the following named Rolling Mills, viz: Norristown, Rough and Ready, Kensington, Triadelphia, Pottsgrove and Thorndale, can supply Railroad Companies, Merchants and others, at the wholesale mill prices for bars of all sizes, sheets cut to order as large as 58 in. diameter; Railroad Iron, domestic and foreign; Locomotive tire welded to given size; Chairs and Spikes; Iron for shafting, locomotive and general machinery purposes; Cast, Shear, Blister and Spring Steel; Boiler rivets; Copper; Pig iron, etc., etc.

MORRIS, JONES & CO.,

Iron Merchants,

Schuylkill 7th and Market Sts., Philadelphia.
August 16, 1849. ly33**Glendon Refined Iron.**

Round Iron,	Band Iron,	Hoop Iron,
Square "	Flat "	Scroll "

Axles, Locomotive Tyres,

Manufactured at the Glendon Mills, East Boston, for sale by

GEORGE GARDNER & CO.,

5 Liberty Square, Boston, Mass.

Sept. 15, 1849. 3m37

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES.—The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at factory prices, at Erastus Corning & Co. Albany; Merritt & Co., New York; E. Pratt & Brother, Baltimore, Md.

RAYMOND & FULLERTON, 45 Cliff St.
Bowling Iron. Stamped B.O.
 Railway Tire Bars Rivet Iron
 Locomotive and other Axles Locomotive Frame do
 Boiler Plates Bars,
 and every other description of this superior Iron.

The subscribers, agents for the sale of Bowling Iron, are prepared to execute orders for importation, especially for railway and machinery uses, with despatch from the manufacturers.

RAYMOND & FULLERTON, 45 Cliff St.

Ibbotson, Brothers & Co's CELEBRATED CAST STEEL

Best Cast Steel Royal Improved Files, well known as better adapted for Engineers' and Machinists' purposes than any now in use in the United States.

Every description of Square, Octagon, Flat and Round Cast Steel, Sheet, Shovel and Railway Spring Steel, etc., and Steel to order for any purposes—manufactured at their works in Sheffield—and universally known by the old stamp "Globe."

HENRY I. IBBOTSON, Agent.,
218 Pearl St., New York.

Railroad Iron. SPIKES.

Wrought Iron CHAIRS, New Pattern.
 THE Undersigned continues to contract, as usual, for the above articles. The reputation already acquired for their excellent quality is a guarantee that strict attention shall continue to be paid to the wants and interests of purchasers.

CHARLES ILLIUS,
20 Beaver St., New York.

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufacturer,

PARK WORKS, SHEFFIELD,
 Double Refined Cast Steel—square, flat and octagon.
 Best warranted Cast Steel—square, flat and octagon.
 Best double and single Shear Steel—warranted.
 Machinery Steel—round.
 Best and 2d gy. Sheet Steel—for saws and other purposes.

German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.

Genuine "Sykes," L. Blister Steel.

Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by

WM. JESSOP & SONS,

91 John street, New York.

Also by their Agents—

Curtis & Hand, 47 Commerce street, Philadelphia.

Alex'r Fullerton & Co., 119 Milk street, Boston.

Suckney & Beatty, South Charles street, Baltimore.

May 6, 1848.

Railroad Iron.

B. O. Railway Tires, Railway Wheels,
 Scotch Pig Iron, Tin Plates and Banca Tin,
 Muntz Patent Metal Sheathing,
 Baltimore Copper.

Contracts for Rails made on behalf of the manufacturers, for delivery at any ports in the United States, at fixed prices.

Bowling Tires and Tire Bars and Scotch Pigs imported to order.

Muntz's Ship-sheathing, and a general stock of Tin Plates and Banca Tin in store, and for sale by.

IRONDALE PIG METAL, MANUFACTURED
 and for sale by the Bloomsburg Railroad Iron Co.
 LINDLEY FISHER, Treasurer.
 75 N. Water St., Philadelphia.

Faggotted Car and Engine Axles

FORGED by RANSTEAD, DEARBORN & Co.,
 Boston, Mass.

These Axles enjoy the highest reputation for excellence, and are all warranted.

Railroad Iron.

3,000 TONS C. L. MAKE 63½ lbs. per yard,
 now landing and to arrive.

Also contracts made for future delivery of above superior make English Iron.

300 Tons Banks Best Iron, Round, Square and Flat.

200 " English Bar "

10 " 9-16 Square Iron for Railroad Spikes.

For sale in lots to suit purchasers by

DAVID W. WETMORE.

New York, March 26, 1850.

Railroad Iron.

CONTRACTS made by the subscribers, agents for the manufacturers, for the delivery of Railway Iron, at any port in the United States, at fixed prices, and of quality tried and approved for many years, on the oldest railways in this country.

RAYMOND & FULLERTON, 45 Cliff St.

JOHNSON, CAMMELL & Co's Celebrated Cast Steel,

AND
ENGINEERING AND MACHINE FILES,
 which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.

JOHNSON, CAMMELL & CO.,
 100 William St., New York.

November 23 1849.

Bowling Tire Bars.

40 Best Flange Bars 5½x2 inches, 11 feet long.
 40 " " 5½x2 " 7 feet 8 in. long.
 40 " Flat " 6x2 " 11 feet long.
 40 " " 6x2 " 7 feet 8 in. long.

Now in store and for sale by

RAYMOND & FULLERTON,
 45 Cliff street.

Wheel, Forge and Foundry Iron.

LOCUST GROVE Wheel Iron of great strength

L and superior chilling property.

Balt. Charcoal Forge Iron, from Patuxent, Curtis Creek and Gunpowder furnaces.

Elkridge Foundry Iron, of superior strength and softness. Anthracite and Charcoal Iron from Pennsylvania and Virginia. Gas and Water Pipes, Lamp Posts from Elkridge furnace.

LEMMON & GLENN,
 5m9 62 Buchanan's Wharf, Baltimore.

S. S. Keyser & Co., IRON WAREHOUSE,

Corner of South and Pratt Streets,
 BALTIMORE, MD.

Selling Agents for the Rough and Ready Bar Iron and Elk Boiler and Flue Iron Rolling Mills, Sarah and Taylor Furnaces, and Wrightsville Hollow Ware Foundry, and Dealers in Bar and Sheet Iron, and Cast, Sheer, German, Blister, Spring and Electroplated Steel, etc., etc.

Smith & Tyson,

GENERAL COMMISSION MERCHANTS,
 No. 25 South Charles St., Baltimore, Md.

AGENTS for the Celebrated Columbia Pig Iron, suitable for Car Wheels and Chilled Rolls.

Columbia refined Charcoal Blooms; Refined Charcoal Juniata Billet Iron for Wire; Refined Iron for Bridging, of great strength; Cut Nails, Spikes, and Brads; Railroad Spikes and Wrought Chairs. 22tf

Tredegar Iron Works.

ROLLING MILL FOUNDRY AND MACHINE
SHOPS. The undersigned continues to manufacture at his Works in this city (from best charcoal metal) Bar Iron of every description, embracing—Rounds and Squares, from ½ to 5 inches diameter. Flats, from ½ to 7 inches, all thicknesses.

Bands and Scrolls, all sizes. Boiler plate and Plough Iron. Railroad and Locomotive Axles and Tires. Locomotive Frames, Spikes and Plates. Hoops, Ovals, Half Ovals, Half Rounds, Angle, T, L, and indeed every description of Iron usually manufactured, all of which he warrants to be equal to any made in this country. He also manufactures at his Foundry and Machine Shops all descriptions of Railroad Work, say, Locomotives, Railroad Wheels and Axles complete and ready for the road, Railroad Chairs, etc. Also, Marine and Stationary Engines all sizes, Sugar mills and Engines, Horse mills, and every kind of Machinery usually required for the operations of the country. He has paid particular attention to getting up machinery, etc., for Gold Mine operations, and those in want of such work might find it to their advantage to give him a call.

J. R. ANDERSON.

Richmond, Va., Sept. 10, 1850.

CUT NAILS OF BEST QUALITY, BAR IRON
 (including Flat Rails) manufactured and for sale by
 FISHER, MORGAN & CO.,
 75 N. Water St., Philadelphia.

Car Wheel Iron.

100 Tons "Columbia" No. 2 Cold Blast Charcoal Iron.

300 Tons "Salisbury" No. 1, do. do.

For sale by CHARLES T. GILBERT,
 No. 80 Broad st.

New York, Sept. 21, 1850.

Railroad Spikes.

THE subscribers are prepared to make and execute contracts for Railroad Spikes of a superior quality, manufactured by the New Jersey Iron Company, at Boonton.

DUDLEY B. FULLER & CO.

139 Greenwich st. corner of Cedar.

Railroad Iron.

1650 Tons, weighing about 61 lbs. per yard, 40 tons, weighing about 52 lbs. per yard, and 825 tons, weighing about 53½ lbs. per yard, of the latest and most approved patterns of T rail, for sale by

BOORMAN, JOHNSTON & CO.,

119 Greenwich street.

New York, Aug. 26, 1850.

N.B.—B. J. & Co are also prepared to take contracts for English rails, delivered in any of the Atlantic ports of the United States.

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract to deliver Rails of superior quality, and of any size or pattern, to any ports of discharge in the United States.

COLLINS, VOSE & CO.

74 South St.

New York, June 1, 1850.

Spikes, Spikes, Spikes.

ANY person wishing a simple and effective Spike Machine, or a number of them, may be supplied by addressing

J. W. FLACK.

March 6, 1850.

Trov. N V

Railroad Iron.

2000 Tons, weighing 68 pounds per lineal yard, of the most approved pattern of T rails, in store and to arrive, for sale by

COLLINS, VOSE & CO.

74 South St.

New York, June 1, 1850.

Railroad Spikes, Boiler Rivets, etc.

THE Subscribers, Agents for the sale of James S. Spencer's, Jr., Railroad and Boat Spikes, Boiler Rivets, and Wrought Iron Chairs for Railroads, made at his Works near this city, will execute all orders with promptness, despatch, and of the best quality.

ALSO IMPORTERS of English refined and Merchant bar Iron; Extra refined Car and Locomotive Axles (from ¾ to 6½ inches in diameter); B. O. Locomotive Tire (welded by Baldwin). Also, supply Boiler and Flue Iron cut to pattern or otherwise—Spring, Shear, and Cast Steel, etc., etc., etc.

T. & E. GEORGE.

Philadelphia, November 14, 1850.

Railroad Iron.

THE UNDERSIGNED, HAVING made arrangements abroad, are prepared to contract for the delivery of Foreign rails, of approved brands upon the most favorable terms.

They will also make contracts for American rails, made at their Trenton works, from Andover Iron, in whole or in part, as may be agreed upon.

They are prepared to furnish Telegraph, Spring and Market Wire; Braziers and Wire Rods; Rivets and Merchant Bars to order, all made exclusively from Andover Iron. The attention of parties who require iron of the very best quality for special purposes, is respectfully invited.

COOPER & HEWITT,

17 Burling Slip, New York.

February 15, 1850.

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract for the delivery of English, Welsh and Scotch Rails, of any pattern and weight, also for every description of English, Welsh, Scotch, and Swedish Iron, Railway Chairs and Spikes, Rivets, Bolts; Nuts, Washers, Chain Cables, Anchors, Tin Plates, German Spelter, Iron Castings, and every description of Machinery.

WILLIAM BIRD & CO.,

Iron and Tin Plate Merchants,

44 Wall St., New York.

And at 5 Martin's Lane, City, London.

and 140 Buchanan st. Glasgow.

July 27th, 1850.

Railway Iron.

THE Subscribers will contract to deliver, in the course of the ensuing Spring and Summer, the best English Rails, made by a particular specification, and of any pattern required.

DAVIS, BROOKS & CO.,

68 Broad st.

On hand for sale, English rails of 58 lbs. to the yard, made by particular specifications.
January 10, 1851. 2m

To Iron Masters.

WANTED—A Person to take charge of a Blast Furnace for Smelting Iron, for further information apply to
COLLINS, VOSE & CO.,
74 South street.

Railroad Iron for Sale.

THE Mansfield and Sandusky City Railroad Co. have on hand from twelve to fifteen hundred tons of American Flat Bar Railroad Iron, weighing 38 lbs. to the lineal yard, which they offer for sale at reasonable rates.

The iron has been in use about four years, and is sound and in good condition. It is 2½ by ½.

It will be ready for delivery at short intervals between the opening of navigation in the spring and the 1st September next.

For further particulars inquire at the office of the company at Sandusky City, Ohio.

C. G. FORBES, President.

December 24, 1850.

Railroad Iron.

THE "Montour Iron Company" is prepared to execute orders for Rails of the usual patterns and weights, and of any required length not exceeding 30 feet per rail. Apply at the office of the Company,

No. 73 South 4th st., Philadelphia,

Or to the Agents,

CHOUTEAU, MERLE & SANFORD,

No. 51 New st., New York.

September, 1850.

American Railroad Iron.

1000 Tons, weighing 50 lbs. per yard, manufactured by Reeves, Abbott & Co., at the Safe Harbor Iron Works, and now lying in yard at Brooklyn, for sale by

CHOUTEAU, MERLE & SANFORD,

No. 51 New street.

Tubes, Tubes, Tubes.

THE undersigned have received special permission from, and are in direct communication with, the Birmingham Patent Lap Welded Iron Tube Company, for the sale of their very excellent and superior Boiler and Gas Tubes in large or small quantities.—These Tubes are sold very extensively in England and on the continent of Europe are sold exclusively by

WM. BIRD & CO.,

Iron and Tinplate Merchants,

44 Wall st., New York

5 Martin's Lane, City, London,

and 140 Buchanan st., Glasgow.

Wanted.

WANTED—A Situation in a Civil Engineer's office, by a Young Gentleman from Scotland—has had six years' experience as a practical Draughtsman, Architect, Surveyor, and Leveller in one of the principal civil engineering establishments in Scotland. First rate reference given. Apply to Messrs. Cooper & Hewitt, 17 Burling Slip, or to

JAS. SNEDDON,

23 Harrison st.

Wanted.

A Second-hand Locomotive of 10 to 15 tons weight. A note, giving lowest terms, addressed to A. B., Railroad Journal Office, will receive attention.
January 9, 1850.

Wanted.

A Second-hand Locomotive, weighing from 10 to 15 tons. A note, addressed A. B., at "Railroad Journal" office, will receive attention, if sent soon.
January 21, 1851.

For Sale.

TWO Locomotive Engines—10½ tons weight, built by Baldwin. Also Four Eight-wheeled Passenger Cars, with side seats, all in good running order. Apply to
WM. E. MORRIS,
Office of Philad., Germantown & Norristown Railroad Co., 9th and Green sts., Philadelphia. 3m5

Great Work on Bridge Building, etc., etc.

JUST published in medium folio, One Dollar, 75 cts. to subscribers.

Part IV of a "THEORETICAL AND PRACTICAL TREATISE ON THE CONSTRUCTION OF BRIDGES IN STONE, IRON AND WOOD," including the Equilibrium of Arches, the mathematical principles of the Oblique Arch, Suspension Arch, etc., Construction of Foundations in Water, Centering, Oblique Arches, etc., the application of Iron to Railroad Structures, Practical Tunnelling, Suspension Bridges, etc.; illustrated by numerous accurately executed Plans, Elevations, Sections and Details of Stone, Iron and Wood Bridges, Viaducts, Tunnels, Culverts, Machines, etc., constructed by the most eminent Architects and Engineers in Europe and the United States, and numerous Original Designs for Bridges, Viaducts, Culverts, etc. The whole calculated to meet the exigencies of Engineers, and assist Draughtsmen, Bridge Builders, Mechanics and Students. By George Duggan, Architect and Civil Engineer.

The present part contains beautifully executed plans, elevations, sections, and details of the Iron Lattice Bridge 140 feet span over the canal in the suburbs of Dublin on the line of the Dublin and Drogheda R.R., Plans, elevations and sections of the Timber Bridge over the Schuylkill, at Market st., Philadelphia, with Arches 160 and 190 feet span. Plans, elevations and sections of a Timber Bridge with Arches 155 and 200 feet span over the Delaware. Also, plans, elevations, sections and details of Lattice and Frame Wood Bridges, explanatory of Nathaniel Towns and Colonel S. H. Long's methods of constructing Bridges of Wood, with the continuation of the Articles on Cofferdams, Concrete, Limes, Mortars, Cements, etc.

Published by George Duggan, 300 Broadway, New York, to whom all communications should be addressed and subscriptions forwarded.

Parties remitting Mr. Duggan \$5, and the remainder \$4 when they have been supplied with the first six parts of the "Theoretical and Practical Treatise on Bridge Building, etc.," shall receive it monthly as published. To those making Mr. Duggan a present remittance of \$9, the work will be forwarded post free to any part of the United States.

Great American Engineering

AND MECHANICAL WORK, just published in medium folio One Dollar, 75 cts. to Subscribers.

Part X. of "Specimens of the Stone, Iron & Wood Bridges, Viaducts, Tunnels, Culverts, &c., &c., of the United States Railroads." By George Duggan, Architect and Civil Engineer.

The present part contains beautifully executed plans, elevations, and sections of the Timber Bridge with Arches 136 feet span, over the Mohawk river, on the line of the Utica and Schenectady R.R. Plans elevations, sections and isometrical views of Timber Piers 100 feet high. A Timber Bridge of 55 feet span, and Ice Breakers, on the line of the Little Schuylkill and Susquehanna R.R.

Also plans, elevations, sections, isometrical views and details of an Iron Bridge 356 feet long, with Arches 81 feet span, erected by the N. York Iron Bridge Co. over Moores Creek, on the line of the Virginia Central R.R., and plans, elevations and sections of an Iron Plank Road Bridge 160 feet span, erected over Buffalo creek by the same company, with a description of Col. Long's method of constructing Bridges in Iron, and an explanation of the causes that led to the failure of the Iron Bridge 60 feet span, near Lackawaxen, on the line of the New York and Erie R. R., at midday, on the 31st July last, by which several lives were lost, and a great amount of property destroyed.

Published by GEORGE DUGGAN,

300 Broadway, New York.

To whom all communications should be addressed and subscriptions forwarded.

Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,

No. 24 Commercial St. Boston.

August, 16, 1849.

6m33

Gas Fixtures.

FIXTURES for Burning Gas for Lighting Public Buildings, Private Dwellings, Stores and Factories, manufactured by the subscriber in great variety. Orders by Mail, or left at the Factory on Causeway street, will be promptly attended to.

HENRY N. HOOPER & CO.

Boston, March 23, 1850.

6m13

TO RAILROAD COMPANIES, CAR MANUFACTURERS, etc.

THE Undersigned hereby gives public notice, that the Commissioner of Patents, pursuant to his decision in relation thereto, on the 8th day of October, 1850, issued to him a Patent for the sole right to manufacture, and exclusive use of the INDIA RUBBER CAR SPRING, on account of priority of invention of said Spring.

F. M. RAY

New York, Oct. 23, 1850.

Iron Trade of Pennsylvania.

DOCUMENTS and Statistics relating to the Manufacture of Iron in the State of Pennsylvania—giving a history of the manufacture from its commencement to this date, illustrated by diagrams. Also tables giving the address and capacity of every establishment in the State. Prepared by direction of the late convention of the trade held in Philadelphia. For sale by

LINDSAY & BLACKISTON, Philadelphia.

FELDING LUCAS, Jr., Baltimore.

HENRY G. NICHOLS, 79 Water st., N. Y.

or at this office—price \$1 00.

It will be sent by mail to any order enclosing the money, and post paid.

Emerson's Patent Ventilator.

ADAPTED to Cars, Engine houses, Public Halls, Factories, Churches, School Houses, Dwellings, Chimney Flues, etc.

This Ventilator is stationary, and cannot get out of order. It is constructed in such conformity to certain ascertained laws of pneumatics, as to insure a constant draft outward, whatever may be the changing direction of the wind. The Massachusetts Mechanic Association have awarded a gold medal to the Inventor, and the Manufacturers have already disposed of over 3,000 of the article. Manufactured and sold by
CHILSON, ALLEN, WALKER & Co.,
351 Broadway, New York.

**Providence Tool Co.,**

MANUFACTURERS OF

Plane Irons, Tooth Irons, Soft Moulding and Rabbet Irons, Cornice Irons, Plow Bits, and Planing Machine Knives:

NUTS, WASHERS AND BOLTS.

—ALSO—

PLATE HINGES AND PICK AXES.

They are prepared to execute orders for all descriptions of Cold Punching and Job Work.

WM. FIELD, Agent. RUFUS WATERMAN, Treas.

PROVIDENCE, R. I.

Lovegrove's Patent Cast Iron Water and Gas Pipes.

THE Subscriber, the Inventor and Patentee of Centrifugal mode of giving form to metallic substances while in a molten state, is preparing to make Cast Iron Water and Gas Pipes, of any dimensions, at prices much lower than they can be made in the old manner, and the pipes warranted to stand a pressure of three hundred pounds to the square inch, and to be soft enough to drill. Steam Engines and all kinds of machinery. Cast Iron Doors and Frames, and Mouldings of every description, made to order.

THOMAS J. LOVEGROVE,

Machinist and Founder,

West Falls Avenue, below Pratt st., Baltimore.

Railroad Letting, in Virginia.

PROPOSALS will be received at the office of the chief engineer of the Richmond and Danville railroad, until 9 o'clock A. M., Monday, the 10th of March, to be decided the 13th of the same month, for doing all the grubbing, clearing, grading, ditching and masonry, on the Richmond and Danville railroad, in the counties of Amelia, Notoway, Prince Edward, Lunenburg and Charlotte, comprehending about 45 miles of road.

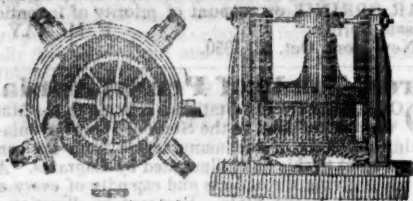
Profiles and specifications can now be seen at the office of the company in Richmond; and after the 10th of February, at the offices of the resident engineers, on the line, at Burkeville and Keysville.

By order of the board of directors,

ANDREW TALCOTT,

Chief Engineer R. & D. railroad.

Engineering department R. & D. }
R. R. Co., Richmond, Jan. 22, 1851. }

MACHINERY.**Henry Burden's Patent Revolving Shingling Machine.**

THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phoenixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll sounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery for making Spikes, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, Agent,
Troy Iron and Nail Factory, Troy, N. Y.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

Brown's Old Established SCALE WARE HOUSE,
NO. 234 WATER ST. NEW YORK.

THE Subscriber, Practical Manufacturer of Scales of every description, respectfully asks the attention of Railroad Companies to his Improved Wrought Iron Railroad Track and Depot Scales which for strength, durability, accuracy, convenience in weighing, and beauty of workmanship, are not surpassed by any others in this country.

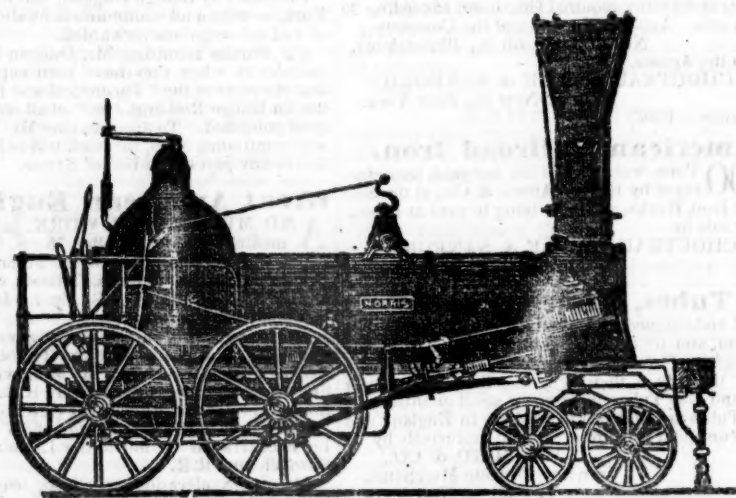
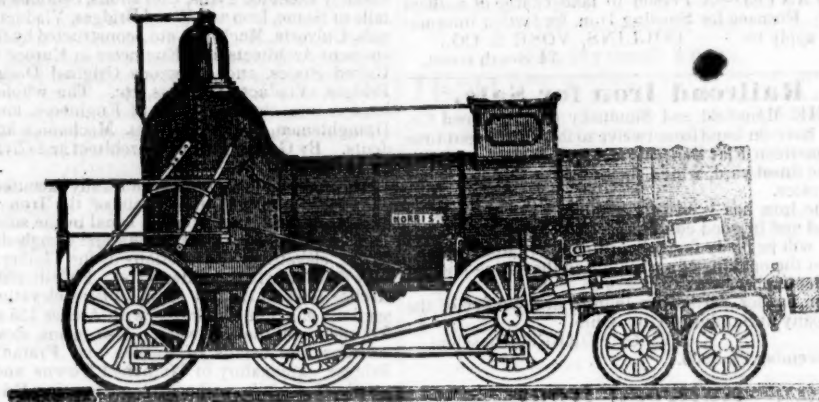
He is aware that this is rather a bold assertion for him to make, yet he can say with confidence that they have but to be tried to give them precedence over all others.

Bank Scales made to order, and all Scales of his make Warranted in every particular.
References given if required

J. L. BROWN.

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tyres are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, Agent,
Troy Iron and Nail Factory, Troy, N. Y.

Etna Safety Fuse.

THIS superior article for igniting the charge in wet or dry blasting, made with DUPONT'S best powder, is kept for sale at the office and depot of

REYNOLDS & BROTHER,

30 So. Manufacturers, No. 85 Liberty St.

NEW YORK.

And in the principal cities and towns in the U. States.

The Premium of the AMERICAN INSTITUTE was awarded to the Etna Safety Fuse at the late Fair held in this city.

November 3, 1849.

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COLUMBUS, OHIO, Railroad Car Manufactory. RIDGWAYS & KIMBALL,

HAVE established at this central point, the manufacture of Passenger, Freight, Gravel and Hand Cars for Railroads, and assure all Western Railroad Companies that it will be their constant aim to procure the best materials and workmen, and to turn out the best kind of work at fair prices. Specimens may be seen on the Columbus and Xenia Railroad. The patronage of Railroad Companies is respectfully solicited.

ly8

FOR SALE.

THREE LOCOMOTIVES, Manufactured by M. W. Baldwin, of 10 tons weight, all in complete repair, and now running on the Columbia and Philadelphia Railroad.

For particulars apply to A. L. Roumfort, Supt. of said road, either at Philadelphia, or Parkersburg, Chester county.

A. L. ROUMFORT,
Supt. Motive Power Col. & Philad. R.R.